



# 2019 Minerals Yearbook

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**CHINA [ADVANCE RELEASE]**

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# THE MINERAL INDUSTRY OF CHINA

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China's economic growth in the past two decades, driven largely by investment and exports, resulted in large increases in China's production of, and demand for, mineral commodities. Also as a result, China had become the world's leading producer and consumer of numerous mineral commodities. Beginning with the economic slowdown that started late 2012, the country's economic development had been and was continuing to be increasingly consumption driven; China's industrial sector, however, still accounted for about 40% of the gross domestic product (GDP) in 2019, which was significantly higher than the percentage for other major economies in the world. The large and growing industrial base was helping keep downstream demand strong and supporting the mineral industry's move to expand capacity. The mineral industry (except for oil and gas extraction) was nonetheless faced with some challenges, such as underutilization of production capacity, slow demand growth, depletion of high-quality resources, and stricter environmental regulations. In 2019, the economic performance of the metal sector generally was weaker than in 2018 owing mainly to lower metal prices and to trade conflicts during the year. The metal mining sector's production and profits decreased, whereas production in the metal processing sector grew steadily and the sector's performance in terms of profit was mixed. The construction materials sector, which supplied predominantly the domestic market, had modest growth in output and profits (China Nonferrous Metals Industry Association, 2020, p. 14; National Bureau of Statistics of China, 2020b).

In 2019, China invested about \$14.4 billion<sup>1</sup> in geologic exploration and \$173 billion in mining activities (development and production of fuel and nonfuel minerals), representing a year-on-year increase of 23% and 24%, respectively. In 2019, China ranked first in the world in the production of coal, fifth in the production of natural gas, and seventh in the production of crude petroleum. China was the leading producer and consumer of primary energy in the world. In addition, the country's production and consumption of cement, gold, most nonferrous metals, and raw steel ranked first in the world. China also accounted for a significant share of the world's production of some other commodities, such as pig iron (63% of world production), rare earths (60%), aluminum (55%), raw steel (54%), and lead (42%). Details of China's share of total world production for a number of nonfuel mineral commodities in 2019 can be found in the U.S. Geological Survey's Mineral Commodity Summaries 2021 (table 1; BP p.l.c., 2020, p. 16, 34, 46; Bray, 2021; Gambogi, 2021; Klochko, 2021; Ministry of Natural Resources, 2020b, p. 7, 13–14; Tuck, 2021; U.S. Geological Survey, 2021).

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<sup>1</sup>Where necessary, values have been converted from Chinese yuan renminbi (CNY) to U.S. dollars at an annual average exchange rate of CNY6.620=\$1.00 for 2018 and CNY6.910=\$1.00 for 2019.

## Minerals in the National Economy

The rate of growth of China's real GDP was 6.1% in 2019 compared with 6.7% (revised) in 2018. The nominal GDP was about \$14.3 trillion in 2019. In 2018 (the latest year for which data were available), mining and manufacturing contributed 2.5% and 27.8% to the GDP, respectively, compared with 2.6% and 28.1%, respectively, in 2017. The portion of the GDP generated by the mining sector increased by 5.7% (based on current prices) in 2018 compared with a 15.1% increase in 2017, and the portion of the GDP generated by the manufacturing sector increased by 9.4% compared with an increase of 12.2% in 2017. In 2019, the number of people employed in the mining and manufacturing sectors was 3.7 million and 38.3 million, respectively, which represented 2.1% and 22.3%, respectively, of the country's total employment. In 2019, the total investment in fixed assets (excluding that by rural households; see Ministry of Natural Resources, 2020b, p. 27, for a detailed definition of fixed assets) was \$8.12 trillion, which was an increase of 5.1% compared with that of 2018. The growth rate of the total investment in fixed assets in the country had decreased gradually in recent years; the recent peak was 30% in 2009. In 2019, investment in fixed assets in the mining sector and the manufacturing sector increased by 24.1% and 3.1%, respectively. In 2019, the national resources tax revenue totaled \$26.4 billion, which was an increase of 11.8% compared with that of 2018 and accounted for 1.2% of the national tax revenue. The special revenue from national mineral resources totaled \$14.1 billion, of which \$13.6 billion was from the transfer of exploration rights and mining rights and \$522 million was from usage fees (occupancy fees) (Ministry of Natural Resources, 2020b, p. 27; National Bureau of Statistics of China, 2020a, sec. 3–1, 3–3, 3–6, 4–5, 10–1, 10–12).

In 2019, the foreign direct investment (FDI, which refers to the investments in China by companies based in other countries) was \$138 billion compared with \$135 billion in 2018. About 1.6% of the FDI was directed to the mining sector and 25.6% was directed to the manufacturing sector. In 2019, overseas direct investment (ODI, which refers to the investment in other countries by companies based in China) was \$137 billion compared with \$143 billion in 2018. The ODI towards the mining sector and the manufacturing sector was \$5.1 billion and \$20.2 billion, respectively. As of yearend 2019, the total accumulated value of China's ODI amounted to \$2.2 trillion; mining and manufacturing accounted for 8.0% and 9.1% of the ODI stock, respectively (National Bureau of Statistics of China, 2019, sec. 11–16; 2020a, sec. 11–16, 11–20).

## Government Policies and Programs

On August 26, the Standing Committee of the 13th National People's Congress passed the "Resource Tax Law of the People's Republic of China," which was the country's

first law to impose a resource tax; the new law would take effect on September 1, 2020, replacing the former regulation “Provisional Regulations on Resource Tax of the People’s Republic of China.” Under the new resource tax law, the mineral resource classification is standardized to a list of 164 tax items covering all discovered minerals in the country. (In the original regulation, only 30 major resource tax items were listed at the national level, and the rest were determined by the provincial government.) According to the law, the resource tax can be calculated based on sales value or quantities in accordance with the “List of Tax Items and Tax Rates,” which is included in the new law. In addition, the law provides for tax relief, tax exemptions, and tax abatement with respect to the resource tax; it also contains details regarding the taxation of water resources as well as details on tax payments for Sino-foreign cooperative enterprises that engage in extraction of oil onshore and offshore (Ministry of Natural Resources, 2019a; 2020b, p. 24–25).

On December 31, the Ministry of Natural Resources issued the “Opinions on Promoting the Reform of Mineral Resources Management (Trial),” which includes a series of major institutional innovations regarding the establishment and implementation of a mining rights transfer system. The regulation stipulates that the transfer of mining rights be done competitively by way of listings, auctions, and bidding rounds. Under the regulation, exploration for and mining of rare-earth or radioactive mineral resources or key projects approved by the State Council may be transferred only to specific or designated entities. The regulation implements new measures to open up the oil and gas exploration and extraction market, including that domestic and foreign enterprises that are registered in China and that have a minimum net asset of RMB 300 million (\$43.4 million) are entitled to obtain mining rights for oil and gas. Exploration rights and extraction rights for oil and gas are combined in the regulation; after reporting to the natural resource authorities in charge of permissions and registration, owners of the oil and gas exploration rights who make a recoverable discovery are authorized to extract the resources, provided they sign the mining right transfer contract within 5 years and complete the mining rights registration process according to existing laws and regulations (Ministry of Natural Resources, 2019c; 2020b, p. 25–26).

Mineral resources are one of the major components of China’s “One Belt One Road” initiative, which is a global infrastructure development strategy adopted by the Chinese Government in 2013. The second “Belt and Road” summit for international cooperation was held in Beijing in April 2019, and the “One Belt One Road” International Geoscience Cooperation and International Mining Investment Forum was held in Xi’an in September. At the forum, 42 mining investment programs were promoted in collaboration with the geological and mineral authorities of some countries. Following the summit and forum, the Government continued to coordinate with countries participating in the “Belt and Road” initiative in such areas as geoscience research, geological surveys, mineral resource management, mine environmental protection, and mining investment. Overall, in 2019, China had provided technical assistance in geological surveys to Liberia, Nepal, Rwanda, and Zambia. Medium- to large-scale geologic and geochemical

surveys were conducted in cooperation with the geological survey agencies of several countries (among which were Laos, Mongolia, and Myanmar); in total, the surveys covered an area of 55,000 square kilometers and delineated 124 mineral prospects (Ministry of Natural Resources, 2019b; 2020b, p. 50, 52).

## Production

The output of iron ore (gross weight of crude ore) was 844 million metric tons (Mt) in 2019, which was an increase of 10.6% compared with that of 2018; raw steel, 996 Mt (an increase of 8.3%); and rolled steel, 1.20 billion metric tons (Gt) (a decrease of 6.3%). The output of refined copper (primary and secondary) was 9.78 Mt in 2019, which was an increase of 5.3% compared with that of 2018, and primary aluminum, 35.0 Mt (a decrease of 2.1%). In 2019, the output of mined gold was about 380 metric tons (t), which was a decrease of 5.2% compared with that of 2018. Significant production increases were recorded for silicomanganese (by 33.3%) and ferronickel (by 26.5%) owing to a substantial release of production capacity and to demand growth from the steel industry (table 1).

In 2019, the output of cement was 2.35 Gt, which was an increase of 5.1% compared with that of 2018; phosphate rock ( $P_2O_5$  content), 28.0 Mt (a decrease of 3.1%); and potash fertilizer ( $K_2O$  equivalent), 5.90 Mt (an increase of 8.3%). Lithium mine output (including ore and brine) increased by 52.1%, and lithium refinery production (three types of compounds) also increased dramatically. Significant production decreases of industrial minerals included that of zeolites, which decreased by 51.2%, and diamond (gem, unspecified), by 48.5% (table 1).

In 2019, China’s primary energy output totaled 3.97 Gt of standard coal equivalent (SCE) and energy consumption was 4.86 Gt of SCE. The energy self-sufficiency rate in 2019 was 81.7%. Coal accounted for 57.7% of energy consumption; petroleum, 18.9%; natural gas, 8.1%; and other energy sources, such as hydropower, nuclear power, solar power, and wind power, 15.3% (combined). Coal production (all types) increased by 4.6% to 3.85 Gt, and crude petroleum production increased by 0.7% to 1.4 billion barrels (Gtbl). The output of natural gas increased by 10.0% to 176 billion cubic meters (table 1; Ministry of Natural Resources, 2020b, p. 15).

Production of most mineral commodities listed in table 1 increased in 2019. Increases in mine production were generally moderate or insignificant, reflecting the effect of environmental pressure and the depletion of high-quality resources; the increases in mineral processing production, which relied heavily on imported raw materials, continued to be strong in 2019. For example, refined cobalt and refined lithium production continued to increase at robust rates in 2019 owing to strong demand from the electric vehicle industry. Data on mineral production are in table 1.

## Structure of the Mineral Industry

In China, most of the mining and mineral-processing activities were conducted by state-owned or state-holding enterprises. The share of state ownership was high in the energy sector and relatively low in the downstream metal manufacturing sector, and the state-owned companies were mostly large in terms

of production quantity and market share. Although private enterprises were generally small, some large private enterprises such as Hengli Petrochemical Co. Ltd. and Weiqiao Aluminum and Electricity Co. Ltd. (Weiqiao) had emerged in recent years. Foreign ownership in China's mineral industry was insignificant (table 2; National Bureau of Statistics of China, 2020a, sec. 13–4, 13–6).

In recent years, reorganization of enterprises was one of the major measures the Government adopted to increase the efficiency and competitiveness of state-owned enterprises and to gain better control of existing and new production capacities. In 2019, a major reorganization in the steel industry was the merger of state-owned Baowu Steel Group Corp. Ltd. (which had been formed through the merger of Baoshan Iron and Steel Corp. Ltd. and Wuhan Iron and Steel Corp. in 2016) and Ma'anshan Iron and Steel Co. Ltd. (which was 100%-owned by the government of Anhui Province through its Assets Supervision and Administration Commission of the State Council). By acquiring a controlling share (51%) in Ma'anshan, Baowu increased its total raw steel capacity from about 70 million metric tons per year (Mt/yr) to about 95 Mt/yr; this investment brought its amount of production capacity closer to that of Luxembourg-based ArcelorMittal, which had a capacity of 114 Mt/yr and was the leading steel company in the world (Zhang, 2019).

## Mineral Trade

In 2019, the total value of exported goods was \$2.50 trillion compared with \$2.49 trillion in 2018. The value of mineral product exports accounted for 2.1% of total exports, which was the same percent as in 2018; exports of base metals and the articles made of them accounted for 7.3% of the total compared with 7.5% in 2018. In 2019, the total value of imported goods was \$2.08 trillion compared with \$2.14 trillion in 2018. The value of mineral product imports accounted for 25.0% of the total compared with 23.1% in 2018; imports of base metals and the articles made of them accounted for about 4.6% of the total compared with 5.0% in 2018. The difference between the import and export volumes of mineral products reflected China's critical reliance on imports of raw materials for its economy. For the metal sector, China was a net importer of ores and concentrates and a net exporter of manufactured metal products (tables 3, 4; National Bureau of Statistics of China, 2019, sec. 11–4; 2020a, sec. 11–2, 11–4).

According to the China Nonferrous Metals Industry Association, imports of nonferrous metals in 2019 decreased by 13.5% to \$144 billion and exports decreased by 6.7% to \$29.8 billion. The decreases were mainly attributed to trade conflicts during the year. Because of continued production increases in the metal smelting and processing sector and decreases (or slow growth for some commodities) in the metal mining sector since 2015, China's reliance on imports of ores and concentrates for major nonferrous metals had increased in recent years. In 2019, the domestic supply of copper concentrates accounted for 22.8% of consumption, which was a decrease of 8.1 percentage points from the proportion in 2015; the domestic supply of bauxite accounted for 48.6% of consumption, a decrease of 10.7 percentage points from that of 2015; the domestic supply of lead concentrates accounted

for 64.5% of consumption, a decrease of 0.9 percentage points from that of 2015; and the domestic supply of zinc concentrates accounted for 70% of consumption, a decrease of 4.6 percentage points from that of 2015. Detailed information on mineral trade can be found in tables 3 and 4 and the Commodity Review section (China Nonferrous Metals Industry Association, 2020, p. 9, 16–17).

## Commodity Review

### Metals

**Aluminum and Bauxite and Alumina.**—In 2019, China's production of bauxite, alumina, and primary aluminum was 70 Mt (estimated), 72.5 Mt, and 35.0 Mt, respectively, which was a decrease of 9.3%, an increase of 0.1%, and a decrease of 2.1%, respectively, compared with that of 2018. In 2019, secondary aluminum production was 7.3 Mt, which was an increase of 4.3% compared with that of 2018. About 6.0 Mt of the secondary aluminum was produced from domestic scrap. Since 2015, production of secondary aluminum overall had increased by 25% and secondary aluminum produced from domestic scrap had increased by 47%. In 2019, imports of aluminum and related products were valued at \$10.7 billion, which was an increase of 2.5% compared with that of 2018, and exports were \$15.6 billion, which was a decrease of 10.4% compared with that of 2018. In terms of tonnage, imports of bauxite increased significantly—by 21.9% to more than 100 Mt. Exports of manufactured aluminum totaled 5.15 Mt, which was a decrease of 1.5% compared with the total in 2018. Given the ample supply of bauxite from overseas mines, the expansion of alumina production capacity accelerated, and had exceeded 87 Mt/yr as of the end of 2019 (table 1; China Nonferrous Metals Industry Association, 2020, p. 17; Ministry of Industry and Information Technology, 2020a).

On November 14, Weiqiao, which had a production capacity of 8.5 Mt/yr and was the leading aluminum producer in China, announced that it would transfer 2 Mt/yr of its electrolytic aluminum capacity from Shandong Province to Wenshan County, Yunnan Province, in the southwest to reduce the company's dependence on coal power. The company planned to transfer the production capacity to Yunnan Province in two phases. After the move to Yunnan, hydropower would be used instead of coal power, and the cost of electricity would be reduced by 10%. The company also planned to source alumina from nearby areas of the country, including the neighboring bauxite-rich Guangxi Autonomous Region, which would reduce the raw material transportation costs for the company (Sohu.com, 2019).

In 2017, the Ministry of Industry and Information Technology initiated the capacity replacement policy as part of supply-side reform; the policy allows companies to replace outdated production capacity with energy-efficient, up-to-date technologies without a net increase in their total capacity. After 2019, the outdated production capacity that had not been replaced would no longer be qualified as a compliant production capacity for replacement. The newly added production capacity was mainly in Guangxi, Nei Mongol (also known as Inner Mongolia), and Yunnan, whereas the eliminated production capacity was mainly concentrated in Henan, Shanxi, and Shandong.



The cost of electricity, the cost of alumina, distance and freight, local business policy, and the local technical support ability were the major factors in considering where the replacement capacity would be located. Yunnan was one of the favorite locations owing to its inexpensive renewable energy, proximity to bauxite resources, adequate local technical talent pool, and proximity to domestic markets, such as the Pearl River Delta, the Chengdu-Chongqing Economic Circle, and foreign markets of South Asian and Southeast Asian countries. In 2019, more than 3 Mt/yr of electrolytic aluminum production capacity was replaced across the Provinces, of which 2.46 Mt/yr was transferred to clean energy-rich areas such as Yunnan (Sina Finance, 2019; Ministry of Industry and Information Technology, 2020c).

**Cobalt.**—China has limited cobalt resources, and an insignificant amount of cobalt concentrate was produced in 2019, mainly at the Baijiazhuizi copper-nickel mine in Gansu; the mine was owned by Jinchuan Group Co. Ltd. Significant cobalt refinery capacity, however, had been developed in China owing to strong demand from downstream high-tech and emerging markets, such as the electric vehicle battery market. As of 2019, China's refinery capacity was 150,000 metric tons per year (t/yr) of cobalt metal equivalent, which was about 70% of the world's capacity. In 2019, China produced 95,000 t of refined cobalt (including about 5,000 t that was produced by Umicore N.V. of Belgium at its facility in China), which was about 70% of the world's production (Xu and others, 2020, p. 9, 14–15, 17, 34).

Imports of cobalt ore and concentrate were about 90,000 t in gross weight and about 6,320 t in cobalt content, which was a decrease of 35% compared with that of 2018. Imports of hydrometallurgical cobalt intermediate products were about 300,000 t in gross weight and about 78,000 t in cobalt content, which was an increase of 34% compared with that of 2018. Total imports of raw materials for refinery production, in terms of cobalt content, was about 84,000 t, which was a 24% increase compared with that of 2018. Imports of refined cobalt were 3,200 t and exports were 19,000 t in 2019. The increase in imports of intermediate products and the decrease in imports of concentrates were owing to the policy of the Democratic Republic of the Congo [Congo (Kinshasa)] to encourage cobalt-mining companies to construct and operate processing facilities in the country and to China's stricter environmental regulations on processing facilities (which resulted in higher operation costs). This trend was expected to continue in the future (Xu and others, 2020, p. 28, 31).

China's consumption of cobalt was 71,000 t in 2019, of which 82% was for the battery market. The country's excess supply of cobalt was estimated to be 9,800 t; the supply excess was expected to continue in the near future because the development of the electric vehicle industry was in transition from being driven by Government policies (which included substantial Government financial subsidies) to a more market-oriented approach, which had led to reduced demand for battery materials. Another factor was that cobalt production through the recycling of ternary batteries was expected to grow rapidly, as the first generation of domestic power batteries would soon enter the peak period of obsolescence (Xu and others, 2020, p. 8, 25, 34).

**Copper.**—Production of copper concentrate (Cu content) increased by 3.7% to 1.68 Mt in 2019. Imports of copper concentrate (Cu content) were 5.51 Mt in 2019 compared with 4.90 Mt in 2018. Consumption of copper concentrate (Cu content) was 6.81 Mt in 2019 compared with 6.30 Mt in 2018. Production of refined copper increased by 5.3% to 9.78 Mt. The net imports of refined copper were 3.16 Mt compared with 3.47 Mt in 2018. Consumption of refined copper was 11.26 Mt compared with 11.17 Mt in 2018. The decrease in refined copper imports was owing to the expansion of domestic smelter and refinery capacity in recent years, which increased the domestic supply of copper metal. This trend was expected to continue in the next 2 years. Imports of copper concentrate, however, were expected to continue their rapid growth trend owing to the expansion of smelter capacity and lack of new, high-quality domestic resources (table 1; Yang and others, 2020, p. 2, 6).

In October, China's Zijin Mining Group Co. Ltd. (Zijin) announced that it would spend \$146 million to buy a total of 49 million shares from Ivanhoe Mines Ltd. through a private share purchase and China's CITIC Metal Co. Ltd.; the purchase would increase Zijin's stake in Ivanhoe to about 14%, making it the second-largest shareholder in Ivanhoe after CITIC Metal (26.4%). Ivanhoe was developing the Kamoakakula copper mine in Congo (Kinshasa). Zijin also owned a 36.9% direct share of the Kamoakakula project company. The proven reserves at the Kamoakakula project were 43.7 Mt of contained copper, and the average grade was 2.53% copper. The designed capacity of phase 1 construction was 300,000 t/yr of copper. According to Ivanhoe, the mine was expected to start production in 2021 and had the potential to be the world's second-largest copper mine in terms of output. Ivanhoe was also developing the historical Kipushi zinc mine in Congo (Kinshasa) and the Platreef platinum and palladium mine in South Africa (Sanderson, 2019; Zijin Mining Group Co. Ltd., 2020).

**Gold.**—As of 2019, China had been the leading gold producer in the world for 13 consecutive years. In 2019, production of mined gold was 380 t, which was a 5.2% decrease compared with that of 2018. The output of mined gold in such major gold-producing Provinces as Fujian, Henan, and Xinjiang declined in 2019 owing to the effects of revised policies on mining rights transfer and the management of cyanide residue as hazardous waste, and to the depletion of mine resources. The decrease of production by mining companies in these Provinces caused supply shortages for the refinery facilities, which therefore imported more ores and concentrates during the year. About 120 t of refined gold was produced using imported raw material in 2019, which was an increase of 6.6% compared with that of 2018. In 2019, the consumption of gold was 1,003 t, which was a decrease of 12.9% compared with that of 2018. The consumption sectors included gold jewelry, which accounted for 676 t of gold consumption; gold bars and gold coins, 226 t; and industrial and other uses, 101 t (China Gold Association, 2020).

On December 2, Zijin announced that it had acquired Continental Gold Inc. (Continental) of Canada for approximately \$1.0 billion. Continental owned a 100% interest in the Buritica gold project in Antioquia, Colombia, which was one of the largest and highest grade gold projects in the world; the Buritica project had mineral resources of 16.02 Mt at an

average grade of 10.32 grams per metric ton gold. The project was expected to produce approximately 250,000 troy ounces per year (7,780 kilograms per year), on average, during a 14-year mine life. Gold mining operations were expected to start in the first half of 2020 (Continental Gold Inc., 2019).

**Iron and Steel.**—The crude iron ore produced in China generally has an iron content of 20% to 30% and needs to be processed to produce concentrate with an iron content comparable to iron ore on the global market. The China Iron and Steel Industry Association changed its data series for crude iron ore in 2018—such that it is dramatically different from the 2017 data—without explanation. Table 1 adopts the new data for 2018 and 2019 and revises previous years' data based on the time series of usable ore production. The iron content of the iron ore concentrates produced in China was 219 Mt in 2019 compared with about 209 Mt (revised) in 2018. Imports of iron ore totaled 1.07 Gt (gross weight, with Fe content of about 62.5%) in 2019, which was a 0.4% increase compared with that of 2018. The average price of iron ore imports in 2019 increased by 36.1% to \$92 per metric ton. In 2019, raw steel production was 996 Mt, which was an increase of 8.3% compared with that of 2018. Rolled steel production was 1.20 Gt, which was an increase of 6.3% compared with that of 2018 (although these numbers may reflect double counting because the method for processing the steel may involve multiple steps and companies may report their output separately) (tables 1, 4; China Iron and Steel Industry Association, 2020, p. 10).

Exports of manufactured steel decreased by 7.3% to 64.3 Mt in 2019; imports of manufactured steel decreased by 6.5% to 12.3 Mt. Net steel exports (raw steel equivalent) totaled 54.2 Mt, which was a decrease of 7.4% compared with exports in 2018. The average price of exports of manufactured steel was \$836 per metric ton, which was a decrease of 4.3% compared with that of 2018, and the average price of imports of manufactured steel was \$1,147 per metric ton, which was a decrease of 8.1% compared with that of 2018. The decrease in exports of manufactured steel was owing to increased demand from the domestic market and to trade conflicts on the global market. The consumption of manufactured steel (raw steel equivalent) increased by 9.6% to 950 Mt in 2019. The decrease in imports was attributed to the anti-dumping practice by the Government during the year. In addition to the decreases in the average prices for exports and imports, which reflected the contraction of the global market, the domestic steel price index decreased by 5.9% in 2019. The decreased steel prices and increased iron ore prices resulted in decreased profitability for the steel industry. In 2019, the revenue of the member companies of the China Iron and Steel Industry Association totaled \$617.4 billion, which was an increase of 10.1% compared with that of 2018, whereas the total profits of these companies totaled \$27.4 billion, which was a decrease of 30.9% compared with that of 2018 (tables 3, 4; China Iron and Steel Industry Association, 2020, p. 3, 5–11).

In October, Daye Specialty Steel Co. Ltd. announced that it had purchased an 86.5% interest in Xingcheng Specialty Steel Co. Ltd. at a cost of \$3.4 billion. The merged company, CITIC Pacific Specialty Steel Holdings Ltd., was the leading specialty steel production company in China; it had a specialty steel

production capacity of 13 Mt/yr and more than 3,000 steel grades and more than 5,000 specifications of specialty steel products. The company planned to increase its production capacity to between 15 Mt/yr and 16 Mt/yr in the future. China's specialty steel output accounted for a relatively low proportion of its total steel output and was mainly low-end products. As reflected by the high average import price and low export price of steel products, China's specialty steel industry still had room for growth in the high-end specialty steel products sector to replace imports and meet domestic demand. According to CITIC Pacific Specialty Steel Holdings, the merger would improve the competitiveness of the company and have a profound effect on the future development of the domestic specialty steel industry (Kang, 2019).

**Lead and Zinc.**—Production of mined lead (concentrate, Pb content) increased by 1.5% to 2.01 Mt, and production of refined lead increased by 0.4% to 4.96 Mt in 2019. Secondary refined lead production was 2.21 Mt, which was a decrease of 1.9% from that of 2018 and a 42.4% increase from that of 2015 and accounted for 44.6% of the country's total refined lead production compared with 35.1% in 2015. Imports of lead concentrate (gross weight) increased by 30.9% to 1.61 Mt in 2019, and imports of refined lead decreased by 26.4% to 94,000 t. Production of zinc concentrate (Zn content) increased by 1.0% to 4.2 Mt in 2019, and production of refined zinc increased by 9.8% to 6.16 Mt. Imports of zinc concentrate (gross weight) increased by 17.5% to 3.17 Mt in 2019, and imports of refined zinc decreased by 15.4% to 605,000 t. The total profit of China's lead-zinc mining companies decreased by 44.0% to \$1.39 billion owing to the decrease in lead and zinc prices during the year. On the other hand, the total profit of the lead-zinc smelting companies increased by 126.1% to \$1.08 billion because the supply of lead-zinc concentrates on the world market was adequate to keep the import price of lead-zinc concentrates low. Lead and zinc production was mainly for the domestic market. Lead consumption remained at the same level as in 2018 owing to the decline in the production of end-use consumer products, such as automobiles, as well as the continued decline in the export of lead-acid batteries and substitution by other materials in many fields. Zinc consumption increased by 4.7% in 2019. The relatively low rate of increase was owing to the decline or slow growth in the infrastructure, home appliances, and automobile sectors (table 1; China Nonferrous Metals Industry Association, 2020, p. 17; Ministry of Industry and Information Technology, 2020b).

**Rare Earths.**—In 2019, China's rare-earth industry continued to be regulated by production quotas, which were determined by the Ministry of Industry and Information Technology and exclusively granted among six Government-designated companies. In 2019, the annual mining and smelting production quotas for rare earths were, for Aluminum Corporation of China (Chinalco), 16,850 t and 21,879 t, respectively; China Minmetals Corp., 2,010 t and 5,658 t, respectively; China North Rare Earth (Group) High Technology Co. Ltd., 70,750 t and 60,984 t, respectively; China Southern Rare Earth Group Co. Ltd., 36,250 t and 23,912 t, respectively; Guangdong Province Rare Earth Industry Group Co. Ltd., 2,700 t and 10,604 t, respectively; and Xiamen Tungsten Co. Ltd., 3,440 t and

3,963 t, respectively. According to the Ministry, any production in the country outside of these quotas would be deemed illegal, and the producers and downstream consumers of these illegal materials would be penalized. The national totals of mining and smelting production quotas in 2019 were 132,000 t and 127,000 t, respectively, compared with 120,000 t and 115,000 t, respectively, in 2018. The increases in the production quotas were all for light rare earths. In 2019, about 28,500 t of rare-earth smelting products was produced using imported ore, resulting in total smelting production of 155,500 t (Cheng and others, 2020, p. 8, 10).

In 2019, exports of rare-earth oxide were 22,049 t, which was a decrease of 7% compared with exports in 2018. Exports of rare-earth compounds were 17,367 t, which was a decrease of 21% compared with those of 2018. Exports of rare-earth metals were about 6,721 t, which was a decrease of 4.8% compared with those of 2018. Exports of rare-earth permanent magnet material were 35,269 t, which was an increase of 8% compared with those of 2018 and accounted for about 20% of the 180,200 t of rare-earth permanent magnet production for the year. China's production and exports of rare-earth permanent magnet material had continued to increase in recent years owing to increasing demand from emerging markets, such as artificial intelligence technology, electric vehicles, energy-saving appliances, and wind power. In comparison, the production and export amounts in 2012 were about 80,000 t and 16,500 t, respectively (Cheng and others, 2020, p. 19, 22).

In 2019, imports of rare-earth concentrates were about 46,600 t, which was an increase of 61.7% compared with those of 2018, and the United States supplied 99% of the total. The Mountain Pass rare-earth mine in the United States restarted mining operations in 2018 (the mine had been placed on care-and-maintenance status following the bankruptcy filing by the owner in 2015), and all the mine's production in 2019 was shipped to China for smelting because the local smelting facility was not in operation. Imports of rare-earth oxide were 17,800 t, which was an increase of 55% compared with those of 2018 and came mainly from Burma (also known as Myanmar) (81%) and Malaysia (14%). Imports of rare-earth compounds were 23,500 t, which was a decrease of 60% compared with those of 2018. Imports of rare-earth metals were about 25.6 t, which was an increase of 299% compared with imports in 2018. Imports of rare-earth permanent magnet material were 1,921 t, which was a decrease of 17% compared with those of 2018. The significant amount of rare-earth concentrate imports was not expected to continue in the future if smelting capacity comes online in the United States as expected. The anticipated decrease in imports from the United States was not expected to have considerable effect on the supply to the domestic market, however, because there were adequate resources of light rare earths in China to meet domestic demand. On May 15, the Government of Burma stopped the export of rare-earth minerals to China through the border crossing between Tengchong, Yunnan, and Burmar, citing domestic resource preservation and environmental protection. Exports of rare-earth minerals to China from Burma was gradually restarted in August, but in December, the Government of Burma again stopped rare-earth exports to China at multiple border ports. In 2019, China imported 28,700 t of rare-earth

products from Burma, which were mainly medium and heavy rare earths. Imports to China from Burma accounted for a substantial fraction of China's total medium and heavy rare-earth supply; the uncertainty of imports from Burma disrupted the market in 2019 and could lead to a supply shortage in the future given the complications for domestic mining companies to achieve quota-level production under strict environmental regulations (Cheng and others, 2020, p. 6–7, 19–23).

**Tungsten.**—China's tungsten reserves accounted for 59% of the world's total, and tungsten was one of the two minerals subject to production quotas by the Government (the other was rare earths). In 2019, the quotas for tungsten concentrates as the primary product were 78,150 t (65% WO<sub>3</sub>), and as a byproduct ("comprehensive recovery" as defined in the quotas document), 26,850 t. In 2019, China's production of tungsten concentrates was 69,000 t (W content). The leading tungsten-producing Provinces were Jiangxi (31,406 t, primary production), Hunan (22,900 t, primary production) and Henan (9,391 t, byproduct of molybdenum mining). In May, the China Tungsten Industry Association held a meeting in Jiangxi and major tungsten-producing companies agreed to decrease production by 10% to address the excess supply and stabilize the market. Consumption of tungsten decreased by 2.7% to 56,400 t, of which primary tungsten accounted for 47,400 t and material recycled from waste accounted for about 9,000 t. The decrease in consumption was owing mainly to the 7% decrease in hard alloy production in 2019. Exports of tungsten products decreased by 28% to 22,200 t (W content) owing mainly to weak external demand and trade frictions (table 1; Ministry of Industry and Information Technology, 2019a; Shedd, 2020; Zhu and others, 2020, p. 8–9, 14, 18–19).

On December 23, the Henan Provincial Bureau of Geology and Mineral Resources announced that a large molybdenum-tungsten deposit had been discovered in Lengshui-Chitudian, Luanchuan, Henan. The resources of the deposit (in metal content) were 3.17 Mt of molybdenum, 2.36 Mt of zinc, 439,600 t of tungsten, 361,600 t of lead, and 391 t of silver. After this discovery, the total molybdenum and tungsten resources in the Luanchuan area reached 6.31 Mt and 1.38 Mt, respectively (China Nonferrous Metals News, 2020).

### *Industrial Minerals*

**Cement.**—In 2019, cement production increased by 5.1% to 2.35 Gt, which was the highest growth rate of the past 5 years and was mainly owing to the continued high growth rate of real estate investment. The rate of growth in real estate investment was 9.9% in 2019 compared with 9.5% in 2018, and the rate of growth in infrastructure investment (excluding electricity) was 3.8% in 2019, which was the same as in 2018. Production of clinker had increased in recent years and reached a record high of 1.52 Gt in 2019, reflecting the continued efforts in the industry to adjust the portfolio of cement products and reduce the fraction of low-grade cement. The market price of cement (national price index) also reached a record high of RMB 439 per metric ton (\$63.5 per metric ton), which was a 2.7% increase compared with that of 2018. The increases in production quantity and market price, in addition to a series of measures by the State Council on tax and fees reduction for the



industry, resulted in record-high profits for the cement industry, which totaled \$27 billion and was a 19.6% increase compared with that of 2018 (table 1; China Cement Industry Association, 2020, p. 2, 4, 11).

In 2019, exports of cement and clinker totaled 5.53 Mt, which was a decrease of 39% compared with that of 2018. Cement imports increased by 110% to 2.01 Mt, and clinker imports increased by 79.5% to 22.7 Mt. In 2018, China changed from a long-time cement exporter to a net importer. The volume of net imports (cement and clinker) increased to 19.2 Mt in 2019 from 4.59 Mt in 2018. Sources of clinker imports were mainly Vietnam (accounting for 67% of total imports), the Republic of Korea (9.6%), Thailand (7.7%), and Indonesia (5.9%). The production capacity in Southeast Asia countries had increased rapidly in recent years, and China's import of clinker was expected to continue to increase in 2020 because of the excess production capacity in these countries (table 3; China Cement Industry Association, 2019; 2020, p. 12–13).

**Graphite.**—In 2019, China produced 1.19 Mt of natural graphite, of which flake graphite accounted for 711,400 t, and amorphous graphite, 473,600 t. Consumption of natural graphite was 1.16 Mt, of which flake graphite accounted for 790,000 t, and amorphous graphite, 372,000 t. China was the world's leading producer and consumer of natural graphite, and the leading exporter and importer. In 2019, China exported 290,000 t of natural graphite, mainly as graphite raw materials, graphite powder of various specifications, and spheroidized graphite products. In recent years, with the commissioning of high-quality graphite mines in other countries, such as Mozambique and Madagascar, China's imports of graphite products from African countries had gradually increased. In 2019, China's graphite product imports increased by 82% to 197,000 t, of which 155,900 t was imported from Mozambique and 35,800 t was imported from Madagascar. Import products were mainly natural flake graphite. China also imported some high-end graphite products, such as battery-grade graphite, from Japan. China's graphite trade pattern had changed dramatically in recent years. In 2010, China exported 585,000 t of graphite and imported 7,660 t. The significant increase in imports and decrease in exports during the past 9 years indicate that the country had changed its role in global graphite market and became the leading consumer in addition to its previous role as the leading producer and exporter. Consumption of graphite in China was expected to increase in coming years because graphite has a variety of applications in emerging technologies (tables 1, 3; Business New Knowledge, 2020; Zhiyan Consulting, 2020).

**Lithium.**—The consumption of lithium salts in China was about 185,900 t of lithium carbonate equivalent (LCE) in 2019 compared with 143,400 t in 2018; the production of lithium salts in China was 227,000 t of LCE, which was an increase of 40% from that of 2018. The domestic supply of lithium raw materials for lithium salt production was 57,500 t of LCE; the rest of China's lithium salt production was from imported ore concentrates and brine. Net exports of lithium salts were 28,600 t of LCE compared with 10,200 t in 2018. The lithium salts market had an excess supply of 12,500 t of LCE in 2019, partially owing to the significant reduction of the Government's financial subsidy to the electric vehicle industry. China's lithium

salts production had expanded significantly in recent years owing to the strong demand for batteries for electric vehicles (table 1; Luo and Cheng, 2020, p. 10, 17, 20, 24).

**Sand and Gravel.**—According to the China Sand and Gravel Industry Association, production of construction sand and gravel was about 90% machine-made and 10% was from natural resources. In comparison, about 30% of the total sand and gravel production in 2008 was machine-made. Construction sand and gravel are the key raw materials for constructing concrete structures and are bulk building materials that consume a lot of natural resources. China's annual output had been at 20 Gt level in recent years. With the tightening supply of natural sand and gravel resources (such as from lakes and rivers) and increasing environmental protection restrictions, machine-made gravel had gradually become the main source of construction sand and gravel in China. The production of machine-made sand and gravel had evolved from simple and scattered manual or semimechanical workshops to standardized and large-scale factories. The number of registered sand and gravel mines decreased to 15,370 in 2019 from 32,298 in 2017 and 56,032 in 2013, whereas production increased by 55% (estimated) from 2013 to 2019. As of yearend 2019, there were 360 machine-made sand and gravel facilities, each with a capacity of 10 Mt/yr or more. The consumption of construction sand and gravel was expected to reach 25 billion metric tons per year (Gt/yr) and stay at that level during the 2020 to 2030 time period (China Sand and Gravel Industry Association, 2020).

On July 4, the Ministry of Industry and Information Technology and nine other Government agencies jointly issued a regulation titled “Several Opinions on Promoting the High-Quality Development of the Machine-Made Sand and Gravel Industry,” which provides new guidance and regulations on the development of the sand and gravel industry. The “Opinions” encourages development of super-large machine-made sand and gravel enterprises with production capacities of 10 Mt/yr or more and the use of construction waste and tailings from iron, molybdenum, vanadium-titanium, and other mines. Transportation requirements favoring railway and water transport over road transportation and standards of unit energy consumption to produce machine-made sand and gravel were also specified in the “Opinions” (Ministry of Industry and Information Technology, 2019b).

### *Mineral Fuels*

**Coal.**—In 2019, coal production increased by 4.6% to 3.85 Gt. China accounted for 51.7% of the world's coal production (in terms of contained energy) in 2019. China's coal production reached a peak of about 4 Gt in 2013 and had declined since then until 2016 owing to the slowdown in the economy, weak domestic demand, and low prices for coal. Production had gradually increased since 2016 because of increasing demand, the restart of some inactive existing capacity, and the commissioning of new capacities. As of 2019, there were 5,271 coal mines in the country with total production capacity (including capacity under construction) of 5.2 Gt/yr, of which 3.9 Gt/yr capacity was in operation, 1.0 Gt/yr capacity was under construction, and about 300 Mt/yr capacity was inactive. Coal imports in 2019 were 299.7 Mt, which was an



increase of 6.6% compared with imports in 2018. China's leading import trade partners (in terms of energy content of imported coal) in 2019 were Indonesia, which supplied 34% of China's coal imports; Australia, 32%; Mongolia, 16%; Russia, 13%; and Canada, 2%. Coal exports in 2019 were 6.03 Mt, which was an increase of 22.3% compared with those of 2018. Coal consumption increased by 1.0% in 2019 to 4.0 Gt, of which 2.37 Gt was used for electricity generation; 660 Mt, by the steel industry; 380 Mt, for construction material production; 300 Mt, by the chemical industry; and 320 Mt, for other uses. In 2019, the revenue of the coal industry totaled \$360 billion, which was an increase of 3.2% compared with that of 2018, and the profits of these companies totaled \$41 billion, which was a decrease of 2.4% (table 1, 3, 4; BP p.l.c., 2020, p. 47, 49; China Coal Industry Association, 2020, p. 1–2, 4–5).

**Petroleum and Natural Gas.**—In 2019, output of crude petroleum increased to 191 Mt (1.4 Gbbl), or by 0.7% compared with that of 2018; consumption of crude petroleum increased by 7.3% to 700 Mt (5.13 Gbbl), of which 72.6% was imported. Production of natural gas increased by 10% to 176 billion cubic meters, and consumption of natural gas increased by 8.7% to 305 billion cubic meters, of which 43.0% was imported. As of yearend 2019, there were 302 companies engaged in petroleum and natural gas extraction. The profits of companies engaged in petroleum extraction totaled \$17.0 billion, and that of natural gas extraction companies, \$6.2 billion (table 1; China Petroleum and Chemical Industry Federation, 2020, p. 3, 5–6, 10).

On February 25, China National Offshore Oil Corp. announced that a condensate gasfield was discovered at the Bohai Oilfield Bozhong 19–6 exploration area. The proven natural gas reserves exceeded 100 billion cubic meters. The gasfield is located just over 100 kilometers (km) from the big cities of Beijing and Tianjin. It is the largest oil and gas discovery in the Bohai Bay Basin in the past 50 years, and the company expected that the discovery would open up a new horizon for natural gas exploration in petroleum-rich basins. According to the Ministry of Natural Resources, in 2019, newly discovered reserves at the Changning Shale Gas Field, the Weiyuan Shale Gas Field, and the Taiyang Shale Gas Field in Sichuan basin exceeded 100 billion cubic meters each. The newly discovered shale gas reserves at other locations in South Sichuan, such as the Ning #216, Ning #209, Wei #208, and Tai Yang-Da Zhai areas, totaled 741 billion cubic meters. As a result, a large-scale shale gas area with more than 1 trillion cubic meters of reserves was formed in South Sichuan (Xinhuanet.com, 2019a; Ministry of Natural Resources, 2020b, p. 6, 11).

On December 2, the China-Russia east-route natural gas pipeline was put into operation, which was scheduled to provide China with 5 billion cubic meters of Russian gas in 2020 and 38 billion cubic meters annually beginning in 2024. The pipeline was constructed and would be operated under a 30-year contract worth \$400 billion that was signed between the China National Petroleum Corp. (CNPC) and Russian gas company PJSC Gazprom in May 2014. According to the contract, Russia would provide a total of 1 trillion cubic meters of natural gas to the Chinese markets of the three northeast provinces (Heilongjiang, Jilin and Liaoning), the

Beijing-Tianjin-Hebei region, and the Yangtze River delta. The cross-border gas pipeline had a 3,000-km section in Russia and a 5,111-km section in China (Xinhuanet.com, 2019b).

## Exploration and Reserves and Resources

In 2019, China's investment in geologic exploration for petroleum and natural gas was \$11.89 billion, which was an increase of 29% compared with that of 2018, and geologic exploration for nonfuel minerals and coal was \$2.49 billion, which was a decrease of 0.9%. Among nonfuel mineral commodities and coal, the leading commodities, in terms of exploration investment in 2019, were gold (which had an exploration investment of \$170 million), lead-zinc (\$155 million), coal (\$145 million), uranium (\$130 million), copper (\$91 million), silver (\$42 million), iron ore (\$32 million), graphite (\$30 million), and tungsten (\$29 million). The investment in tungsten exploration increased by 221% in 2019 followed by tin (84%), uranium (29%), molybdenum (25%), and graphite and rare earths (20% each). The exploration investment for nickel decreased by 40%, followed by decreases in the exploration investment for potash (by 37%), copper (33%), manganese and phosphate rock (29% each), and gold (25%). The number of newly discovered mineral deposits in 2019 was 79, of which the leading minerals were fluorite (10 newly discovered deposits), graphite (7 deposits), gold (5 deposits), copper (5 deposits), and tungsten (4 deposits). Newly discovered major mineral resources in 2019 included 9.05 Gt of coal, 210 Mt of iron ore, 201 Mt of bauxite, 108 Mt of phosphate rock, 60.7 Mt of graphite, 21.6 Mt of manganese ore, 2.77 Mt of lead and zinc, 1.06 Mt of copper, 1,953 t of silver, and 107 t of gold (Ministry of Natural Resources, 2020a, p. 3, 10; 2020b, p. 7).

Major discoveries by exploration projects included that in the Shisi-Beiyue area in Xin'an County, Henan, which added about 111 Mt of bauxite resources; the Sanjiao exploration area in An'ze County, Shanxi, which added 540 Mt of coal resources; the Railway Ridge copper mine in Chaishang District, Jiujiang City, Jiangxi, which added about 606,000 t of copper resources; the Dushuzheng exploration area in Fangcheng County, Henan, which added about 1.01 Mt of fluorite resources; the Xilingcun exploration area in Laizhou City, Shandong, which added about 48 t of gold resources; the Sanhecun exploration area in Linkou County, Heilongjiang, which added about 18.9 Mt of graphite resources; the Zhaojiazhuang iron ore mine in Yuncheng City, Shanxi, which added 186 Mt of iron ore resources; the Qiemoge Hill exploration area in Tianjun County, Qinghai, which added 9,500 t of lithium (spodumene, Li<sub>2</sub>O content) resources; the Xiaoyangping section of Yichang phosphate mine in Yichang City, Hubei, which added 130 Mt of phosphate rock resources; and the Erdaokanchun exploration area in Nenjiang County, Heilongjiang, which added 1,536 t of silver resources (Ministry of Natural Resources, 2020a, p. 10–13).

The National Bureau of Statistics of China stopped reporting reserves data in the China Statistical Yearbook 2018. The Ministry of Natural Resources reports "resource and reserves" data in its annual report, China Mineral Resources. Table 5 shows the reserves as of 2017 owing to a lack of new data that complies with the definition of reserves.

## Outlook

According to the International Monetary Fund, the global economy is projected to contract by 4.4% in 2020 owing to the effects of the COVID-19 pandemic. A rebound of 5.2% is expected in 2021, and then global growth is expected to gradually slow to about 3.5% into the medium term. China's GDP growth is projected to be 1.9% in 2020 and 8.2% in 2021. According to International Monetary Fund, prospects for China are much stronger than for most other economies because of its quick return to normal activities after most of the country reopened in early April following the pandemic lockdown. The continued recovery is expected to provide stable support for the mineral industry. Modest growth in mineral output is expected for 2020 owing to recovered domestic demand, and strong growth is expected for 2021 owing to the anticipated recovery of the global economy from the pandemic. Imports of metallic ore and concentrate are expected to continue to increase in the near term if mining activities in source countries are not dramatically disrupted by the pandemic. Exports of manufactured metals are expected to decrease significantly in 2020 in response to weak global demand. Industrial mineral output is less correlated to the global market and will roughly match the pace of the country's GDP growth. If the pandemic is to last for a prolonged period of time and global demand continues to weaken, the metal processing sector may eventually face difficulties because not only the export of metal products will decrease but the domestic demand from downstream industries that produce end-use products with embedded metals for export will also decrease. For individual minerals, the relation between supply and demand can vary dramatically depending on the effects of the pandemic on the supply chain locally and globally; unexpected and possibly dramatic disruptions could happen because of supply shortages, decreased demand, and market volatility (International Monetary Fund, 2020, p. XV, 9, 11).

In the medium-to-long term, demand for major nonferrous metals, such as aluminum and copper, will continue to increase at a modest rate. Some minor metals used for strategic and emerging industries, such as cobalt and lithium for the electric vehicle industry, may continue to see strong consumption growth; the growth, however, is subject to industry policy changes, such as the decrease or elimination of Government subsidies as the industry transitions from a policy-driven stage to a market-driven stage. Despite the decreasing share of domestic supply for major metallic ores and concentrate, the medium- to long-term supply is expected to be stable because the supply from overseas mines—including some large-scale overseas investment projects by Chinese companies that are either in the stage of ramping up production or are expected to be commissioned in the coming years—is thought to be adequate to meet demand. Many of those projects will gradually enter a harvest period, and most of the production will be shipped to China. Another increasing source of supply is the secondary production from end-use scraps. Large-scale industrialization and urbanization started about two decades ago, and some of the construction projects and products created at that time are reaching their end of life. Some first-generation high-tech devices, such as batteries for electric vehicles, are about to be scrapped for recycling. Government policy in support of

recycling and secondary production and increasing availability of domestic scrap are expected to result in rapid growth in secondary production of some major metals, such as aluminum, copper, lead, and steel, and in such minor metals as cobalt and lithium.

The effect of the COVID-19 pandemic on China's energy sector is expected to be relatively insignificant because the country is mainly an energy consumer, and thus the decreased demand and price on the global petroleum market will not have negative effects on China's imports and consumption. Significant increases in domestic petroleum output are not expected because of China's limited domestic resources. Natural gas production may continue to increase in response to the significant exploration investment and discoveries in recent years. The country will continue to rely heavily on imports to meet its growing demand for petroleum and natural gas, and the volumes of imports are expected to continue to increase at a moderate rate during and following the pandemic. Although it is possible that the volume of coal output may increase at a modest rate in the future, the share of coal in China's total energy consumption is likely to decrease gradually, by about 1 percentage point per year, as the country continues to shift towards the use of clean energy, such as natural gas and renewable energies.

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TABLE 1  
CHINA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>	2015	2016	2017	2018	2019
<b>METALS</b>					
<b>Aluminum:</b>					
Bauxite	60,790 <sup>f</sup>	68,620	68,390	77,170 <sup>f</sup>	70,000 <sup>e</sup>
Alumina	58,978	61,034	69,017	72,531	72,474
<b>Metal:</b>					
Primary	31,400	32,698	32,273	35,802	35,044
Secondary	5,780	6,300	6,900	6,950	7,250
Total	37,200 <sup>f</sup>	39,000	39,200	42,800	42,300
Metal products	52,361	57,961	58,324	51,756	52,522
<b>Antimony:</b>					
Mine, Sb content	120,700	107,500	97,700	95,300 <sup>f</sup>	81,500 <sup>e</sup>
Refinery, metal	209,900	210,300	203,400	191,600 <sup>f</sup>	219,000 <sup>e</sup>
<b>Beryllium, mine, beryl:</b>					
Gross weight	1,275	1,150	1,300	1,725	1,750
Be content	51	46	52	69	69
<b>Bismuth:</b>					
Mine, Bi content	1,587	1,672	1,748	1,804 <sup>f</sup>	1,850 <sup>e</sup>
Refinery	16,013	15,643	14,813	15,537 <sup>f</sup>	16,000 <sup>e</sup>
Cadmium, refinery, primary	8,162	8,222	8,411	10,349 <sup>f</sup>	10,000 <sup>e</sup>
Chromium, mine, chromite	23 <sup>e</sup>	88	71	71 <sup>f</sup>	84
<b>Cobalt, Co content:</b>					
Mine, concentrate, byproduct from polymetallic ore <sup>e</sup>	2,600	2,300	2,500	2,000	2,500
<b>Refinery:</b>					
Metal	5,159	8,578	8,357	8,180 <sup>f</sup>	9,300
Other, including powder, oxide, salts	48,300 <sup>e</sup>	41,300 <sup>e</sup>	66,600 <sup>e</sup>	74,900 <sup>f, e</sup>	85,700
Total	53,500 <sup>e</sup>	49,900 <sup>e</sup>	75,000 <sup>e</sup>	83,100 <sup>e</sup>	95,000
<b>Copper:</b>					
<b>Mine, Cu content:</b>					
Concentrates	1,670,000	1,850,700	1,656,400 <sup>f</sup>	1,569,900 <sup>f</sup>	1,628,000
Solvent extraction	44,900	49,500	50,000	55,000	55,700
Total	1,710,000	1,900,000	1,710,000	1,620,000 <sup>f</sup>	1,680,000
<b>Smelter:</b>					
Primary	5,500,000	6,215,000 <sup>f</sup>	6,600,000 <sup>f</sup>	7,035,600 <sup>f</sup>	7,416,000
Secondary	1,380,000	1,325,400 <sup>f</sup>	1,380,500 <sup>f</sup>	1,561,800 <sup>f</sup>	1,688,400
Total	6,880,000	7,540,000 <sup>f</sup>	7,980,000 <sup>f</sup>	8,600,000 <sup>f</sup>	9,010,000
<b>Refinery:</b>					
<b>Primary:</b>					
Leaching, electrowon	44,900	49,500	50,000	55,000	55,700
Other	5,627,000	6,195,700	6,564,300	7,001,800 <sup>f</sup>	7,558,200
Total	5,670,000	6,250,000	6,610,000	7,060,000	7,610,000
Secondary	2,297,000	2,209,000	2,300,800	2,234,600	2,170,800
Grand total	7,970,000	8,450,000	8,920,000	9,290,000	9,780,000
Products, manufactured copper	19,135,000	20,960,000	18,617,000	17,155,000	20,172,000
<b>Ferroalloys:</b>					
Ferromanganese	3,940,000	4,230,000	4,940,000	5,280,000 <sup>f</sup>	6,030,000
<b>Ferromanganese:<sup>e</sup></b>					
Blast furnace	446,000	340,000	220,000	270,000	290,000
Electric furnace	2,120,000	1,610,000	1,560,000	1,660,000	1,770,000
Ferromolybdenum	116,000	127,000	138,000	144,000	144,000
Ferronickel, nickel pig iron	8,800,000	10,000,000	10,500,000	12,100,000 <sup>e</sup>	15,300,000 <sup>e</sup>
Ferrosilicon	4,730,000	4,300,000	3,650,000	5,450,000 <sup>f</sup>	5,490,000
Ferrovandium	40,900	34,200	38,400	40,500	43,600
Silicomanganese	5,870,000	7,267,000	6,610,000	9,450,000	12,600,000
Gallium	444	171	319	404	338
Germanium, Ge content	100	82	79	95	86

See footnotes at end of table.

TABLE 1—Continued  
CHINA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>	2015	2016	2017	2018	2019	
METALS—Continued						
Gold:						
Mine, Au content	kilograms	450,000	453,500	426,142	401,119	380,230
Refinery, primary	do.	515,880	535,447	517,490	513,902	500,420
Indium, refinery, primary, In content	do.	421,000	454,000	478,000	483,000 <sup>r</sup>	534,000 <sup>e</sup>
Iron ore, mine:						
Crude ore	thousand metric tons	952,000 <sup>r,e</sup>	877,000 <sup>r,e</sup>	830,000 <sup>r,e</sup>	763,000 <sup>r</sup>	844,000
Usable ore:						
Gross weight	do.	396,899 <sup>r</sup>	365,573 <sup>r</sup>	345,472 <sup>r</sup>	334,790 <sup>r</sup>	351,000
Fe content	do.	247,665 <sup>r</sup>	228,118 <sup>r</sup>	215,989 <sup>r</sup>	209,311 <sup>r</sup>	219,000
Iron and steel:						
Pig iron	do.	691,410	702,270	713,620	779,880 <sup>r</sup>	809,365
Steel:						
Raw steel	do.	803,820	807,610	870,740	920,027 <sup>r</sup>	996,342
Products, rolled	do.	1,123,500	1,134,610	1,048,180	1,132,870 <sup>r</sup>	1,204,770
Lead:						
Mine, Pb content	do.	2,335	2,338	2,032 <sup>r</sup>	1,976 <sup>r</sup>	2,005
Smelter, primary	do.	2,811	2,875	2,663	2,695 <sup>r</sup>	2,700 <sup>e</sup>
Refinery:						
Primary	do.	2,870	3,017	2,649 <sup>r</sup>	2,691 <sup>r</sup>	2,749
Secondary	do.	1,552	1,663	2,049	2,252 <sup>r</sup>	2,210
Total	do.	4,420	4,680	4,700 <sup>r</sup>	4,940 <sup>r</sup>	4,960
Magnesium, primary, metal and alloy		859,000	872,800	904,600	863,000	970,000 <sup>e</sup>
Manganese:						
Mine, ore:						
Gross weight	thousand metric tons	10,566 <sup>r</sup>	10,848 <sup>r</sup>	15,618 <sup>r</sup>	8,242 <sup>r</sup>	8,880
Mn content	do.	1,691 <sup>r</sup>	1,627 <sup>r</sup>	2,343 <sup>r</sup>	1,236 <sup>r</sup>	1,332
Refinery, metal, electrolytic	do.	1,040	1,240	1,510	1,390	1,530
Mercury, mine, Hg content		2,801	3,482	3,573	2,317 <sup>r</sup>	2,250 <sup>e</sup>
Molybdenum, mine, Mo content		135,000	129,000	117,000	113,000 <sup>r</sup>	115,000 <sup>e</sup>
Nickel, Ni content:						
Mine, concentrate		101,400	100,200	102,300	108,200 <sup>r</sup>	120,000 <sup>e</sup>
Intermediate, matte		162,500	163,600	149,400	159,300 <sup>r</sup>	155,000 <sup>e</sup>
Chemicals		18,891	29,100	39,900	45,200	41,300
Ferronickel, nickel pig iron		385,035	374,745	411,462	476,040	600,340
Refinery, metal, electrolytic		236,700	221,700	202,900	191,100 <sup>r</sup>	185,000 <sup>e</sup>
Niobium, mine, mineral concentrate, Nb content		30 <sup>e</sup>	37	45	45	45 <sup>e</sup>
Platinum-group metals, mine						
Palladium, Pd content	kilograms	1,200	1,400	1,400	1,300	1,300 <sup>e</sup>
Platinum, Pt content	do.	2,300	2,900	2,500	2,500	2,500 <sup>e</sup>
Rare earths, mineral concentrate, rare-earth oxide equivalent		105,000	105,000	105,000	120,000	132,000
Rhenium, Re content, in NH <sub>4</sub> ReO <sub>5</sub> <sup>e</sup>	kilograms	2,500	2,500	2,500	2,500	2,500
Selenium, Se content		720	750	930	1,050 <sup>e</sup>	1,100 <sup>e</sup>
Silicon, metal	thousand metric tons	1,954	2,101	2,205	2,405 <sup>r</sup>	2,210
Silver, mine, Ag content		3,393	3,754 <sup>r</sup>	3,601 <sup>r</sup>	3,422 <sup>r</sup>	3,443
Tantalum, mine, mineral concentrate, Ta content		63 <sup>e</sup>	65	75	90	76 <sup>e</sup>
Tellurium, refinery		285	279	291	307 <sup>e</sup>	325 <sup>e</sup>
Tin:						
Mine, Sn content		110,156	97,200	95,500	94,800 <sup>r</sup>	84,500
Smelter, primary		167,200	182,500	178,400	182,000 <sup>r</sup>	166,000
Titanium:						
Ilmenite and leucoxene, concentrate:						
Gross weight		3,910,000	3,800,000	3,830,000	4,200,000	4,600,000
TiO <sub>2</sub> content		1,895,000	1,959,000	1,905,000	2,090,000 <sup>r</sup>	2,290,000
Sponge		58,762	66,263	69,641	71,119 <sup>r</sup>	84,880

See footnotes at end of table.

TABLE 1—Continued  
CHINA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>	2015	2016	2017	2018	2019	
METALS—Continued						
Tungsten, mine, concentrate, W content	67,000	64,000	67,000	65,000	69,000	
Vanadium, V content	48,700	48,700	54,100	53,200	70,600	
Zinc:						
Mine, Zn content	thousand metric tons	4,749	4,711	4,300	4,172 <sup>r</sup>	4,213
Smelter:						
Primary	do.	5,910	5,900	5,674 <sup>r</sup>	5,057 <sup>r</sup>	5,372
Secondary, remelt	do.	206	296	470 <sup>r</sup>	550 <sup>r</sup>	790
Total	do.	6,120	6,200	6,140 <sup>r</sup>	5,610 <sup>r</sup>	6,160
Zirconium, mine, zircon <sup>c</sup>	150,000	140,000	140,000	140,000	140,000	
INDUSTRIAL MINERALS						
Arsenic trioxide <sup>c</sup>	25,000	25,000	24,000	24,000	24,000	
Asbestos	227,073	191,632	124,723	135,000 <sup>r,e</sup>	150,000 <sup>e</sup>	
Barite <sup>c</sup>	3,500,000	3,200,000	3,100,000	2,900,000	2,800,000	
Boron, B <sub>2</sub> O <sub>3</sub> content	73,640 <sup>r</sup>	49,320 <sup>r</sup>	255,000 <sup>r</sup>	168,000 <sup>r</sup>	383,000	
Bromine	86,400	77,000	76,000	68,300 <sup>r</sup>	69,600	
Celestite	53,200	65,300	53,700	61,600 <sup>r</sup>	83,600	
Cement, hydraulic	thousand metric tons	2,359,000	2,410,000	2,331,000	2,236,000 <sup>r</sup>	2,350,000
Clay:						
Bentonite	do.	1,755	1,558	2,014	1,909 <sup>r</sup>	2,475
Kaolin	do.	6,414	5,643	5,215	4,507 <sup>r</sup>	6,867
Diamond:						
Gem, unspecified	thousand carats	150 <sup>e</sup>	127 <sup>e</sup>	230	99	51
Synthetic, industrial	do.	15,100,000	13,900,000	14,300,000	18,200,000	20,000,000 <sup>e</sup>
Diatomite	350,000	169,300	147,000	144,100 <sup>r</sup>	141,400	
Dolomite	thousand metric tons	10,600	11,650	12,670	13,450 <sup>r</sup>	15,000 <sup>e</sup>
Feldspar	do.	2,060	2,684	1,618	2,386 <sup>r</sup>	2,626
Fluorspar	do.	3,980 <sup>r</sup>	3,470	4,380	4,980 <sup>r</sup>	5,447
Garnet, industrial	68,500	88,900	260,100	309,600 <sup>r</sup>	300,000 <sup>e</sup>	
Graphite:						
Amorphous, aphanitic	181,400 <sup>r</sup>	199,800 <sup>r</sup>	333,400 <sup>r</sup>	469,600 <sup>r</sup>	473,600	
Crystalline flake	526,600 <sup>r</sup>	539,200 <sup>r</sup>	748,600 <sup>r</sup>	694,400 <sup>r</sup>	711,400	
Total	708,000 <sup>r</sup>	739,000 <sup>r</sup>	1,080,000 <sup>r</sup>	1,160,000 <sup>r</sup>	1,190,000	
Gypsum:						
Mine	thousand metric tons	16,300	12,190	11,740	11,900 <sup>r</sup>	12,640
Synthetic, industrial byproduct	do.	200,000	194,000 <sup>r</sup>	196,000 <sup>r</sup>	199,000 <sup>r</sup>	196,000
Lime <sup>c</sup>	do.	250,000	290,000	290,000	300,000	310,000
Lithium:						
Mine, lithium carbonate equivalent:						
Ore and concentrate <sup>c</sup>	10,700	11,400	14,300	14,800 <sup>r</sup>	24,500	
Brine <sup>c</sup>	9,800	14,000	23,000	23,000 <sup>r</sup>	33,000	
Total	20,500	25,400	37,300	37,800	57,500	
Refinery:						
Compounds:						
Lithium carbonate	42,000	53,400	83,000	109,000	162,000	
Lithium chloride	13,000	13,000	13,000	18,000	28,000	
Lithium hydroxide	22,000	25,000	35,000	42,000	81,000	
Metal	2,680	2,800	2,500	3,200	2,903	
Magnesite <sup>c</sup>	thousand metric tons	18,400	18,600	19,000	18,500	19,000
Mica	85,000 <sup>e</sup>	95,000 <sup>e</sup>	80,300 <sup>r</sup>	86,400 <sup>r</sup>	98,000	
Nitrogen, N content:						
Ammonia	thousand metric tons	47,603	46,922	40,656	37,907	38,922
Urea	do.	32,470	28,480	24,540	23,940	24,660
Perlite	723,800	1,930,000	1,219,000	935,600 <sup>r</sup>	1,472,100	

See footnotes at end of table.



TABLE 1—Continued  
CHINA: PRODUCTION OF MINERAL COMMODITIES<sup>1</sup>

(Metric tons, gross weight, unless otherwise specified)

Commodity <sup>2</sup>	2015	2016	2017	2018	2019	
<b>INDUSTRIAL MINERALS—Continued</b>						
Phosphate:						
Mine, phosphate rock:						
Gross weight	thousand metric tons	142,000	144,400	123,100	96,310	93,320
P <sub>2</sub> O <sub>5</sub> content	do.	42,600	43,300	36,900	28,900	28,000
Fertilizers, P <sub>2</sub> O <sub>5</sub> content	do.	18,570	18,590	15,010	12,960	13,080
Potash, K <sub>2</sub> O content, marketable	do.	5,710	5,780	5,510	5,450	5,900
Salt	do.	66,655	66,201	66,542	63,640 <sup>†</sup>	62,710
Soda ash, natural and synthetic	do.	25,920	25,850	27,670	26,480 <sup>†</sup>	28,880
Sodium, compounds:						
Caustic soda	do.	30,210	32,020	33,290	34,760 <sup>†</sup>	34,640
Mirabilite	do.	4,510	4,070	5,990	4,850 <sup>†</sup>	4,430
Sulfur, S content:						
Byproduct:						
Metallurgy <sup>c</sup>	do.	7,400	6,300	5,650	5,700	5,700
Natural gas and petroleum	do.	5,530	5,500	5,940	5,900 <sup>e</sup>	5,900 <sup>e</sup>
Pyrites	do.	4,360	5,200	5,850	5,610 <sup>†</sup>	5,700
Total <sup>c</sup>	do.	17,300	17,000	17,400	17,200 <sup>†</sup>	17,300
Sulfur, compounds, sulfuric acid	do.	89,755	88,891	86,942	86,364	89,357
Talc	do.	1,846	1,642	1,276	1,503 <sup>†</sup>	1,357
Wollastonite <sup>c</sup>	do.	1,100	880	840	1,100 <sup>†</sup>	970
Zeolites	do.	256,900	329,100	318,900	106,200	51,800
<b>MINERAL FUELS AND RELATED MATERIALS</b>						
Coal:						
Anthracite <sup>c</sup>	thousand metric tons	401,000	364,000	377,000	394,000	411,000
Bituminous <sup>c</sup>	do.	2,480,000	2,250,000	2,330,000	2,430,000	2,540,000
Lignite <sup>c</sup>	do.	252,000	229,000	237,000	248,000	259,000
Metallurgical <sup>c</sup>	do.	620,000	564,000	583,000	611,000	637,000
Total	do.	3,750,000	3,410,000	3,530,000	3,680,000	3,850,000
Coke, metallurgical	do.	448,225	449,115	431,426	448,300 <sup>†</sup>	471,300
Liquefied natural gas	do.	5,127	6,953	8,290	9,002	11,650
Natural gas:						
All forms	million cubic meters	135,000	137,000	148,000	160,000	176,000
Coalbed gas, only	do.	6,340	7,480	7,020	7,260	8,880
Petroleum:						
Crude, including from oil shale	million 42-gallon barrels	1,570	1,460	1,400	1,390	1,400
Refinery:						
Throughput	do.	3,930 <sup>†</sup>	4,070 <sup>†</sup>	4,280 <sup>†</sup>	4,540 <sup>†</sup>	4,910
Products:						
Asphalt	do.	195	198	241	244	305
Diesel	do.	1,340	1,340	1,370	1,300	1,240
Fuel oil	do.	160	179	186	140	171
Gasoline	do.	1,030	1,100	1,130	1,190	1,200
Kerosene	do.	283	308	327	369	408
Liquefied petroleum gas	do.	340	406	427	441	480
Naphtha	do.	233	270	280	294	320
Petroleum coke	do.	138	143	150	145	154
Uranium, mine, U content <sup>c</sup>	do.	1,620	1,620	1,890	1,890	1,890

<sup>c</sup>Estimated. <sup>†</sup>Revised. do. Ditto.

<sup>1</sup>Table includes data available through January 14, 2021. All data are reported unless otherwise noted. Totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>In addition to the commodities listed, iodine and a variety of construction stone and sand and gravel may have been produced, but available information was inadequate to make reliable estimates of output.

TABLE 2  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>c</sup>	
<b>Aluminum:</b>				
Bauxite	Guangxi Tiandong Jinxin Chemical Co. Ltd.	Guangxi, Tiandong	1,000	
Do.	Luoyang Xiangjiang Wanji Aluminum Industry Co. Ltd.	Henan, Xin'an	2,000	
Do.	Aluminum Corporation of China (Chinalco)	Mines in multiple Provinces	26,300	
Do.	Yunnan Aluminium Co. Ltd.	Yunnan, Kunming	2,500	
Do.	Yunnan Wenshan Aluminum Co. Ltd.	Yunnan, Wenshan	2,000	
Alumina	Guangxi Huayin Aluminium Industry Co. Ltd.	Guangxi, Debao	2,200	
Do.	Luoyang Xiangjiang Wanji Aluminium Industry Co. Ltd.	Henan, Luoyang	1,400	
Do.	Hangzhou Jinjiang Group Co. Ltd.	Jiangsu, Hangzhou	7,700	
Do.	Aluminum Corporation of China (Chinalco)	Plants in multiple Provinces	18,900	
Do.	China Power Investment Corp.	do.	3,000	
Do.	East Hope Group Co. Ltd.	do.	5,500	
Do.	Xinfa Aluminium Group Co. Ltd.	do.	15,800	
Do.	Nanshan Group Co. Ltd.	Shandong, Yantai	2,000	
Do.	Weiqiao Aluminum and Electricity Co. Ltd.	Shandong, Zouping	16,500	
Do.	Yangquan Coal Industry Group Co. Ltd.	Shanxi, Yangquan	1,000	
Metal	Gansu Dongxing Aluminum Co. Ltd.	Gansu, Lanzhou	1,700	
Do.	Henan Shenhua Group Co. Ltd.	Henan, Yongcheng	925	
Do.	Yidian Holding Group Co. Ltd.	Plants in Henan Province	2,010	
Do.	Aluminum Corporation of China (Chinalco)	Plants in multiple Provinces	4,800	
Do.	China Power Investment Corp.	do.	3,230	
Do.	East Hope Group Co. Ltd.	do.	1,660	
Do.	Xinfa Aluminium Group Co. Ltd.	do.	3,480	
Do.	Weiqiao Aluminum and Electricity Co. Ltd.	Shandong, Zouping	8,500	
Do.	Tianshan Aluminum Co. Ltd.	Xinjiang, Shihezi	1,200	
Do.	Yunnan Aluminium Co. Ltd.	Yunnan, Kunming	2,100	
Antimony	Huaxi (China Tin) Group Industrial Co.	Guangxi, Hechi	40	
Do.	Jiyuan Wangyang Smeltery Group Co. Ltd.	Henan, Jiaozuo	10	
Do.	Hsikwangshan Twinkling Star Antimony Co. Ltd. (China Minmetals Corp.)	Hunan, Lengshuijiang	40	
Do.	Hunan Chenzhou Mining Group Co. Ltd.	Hunan, Yuanling	20	
Asbestos	China National Nonmetallic Industry Corp.	Nei Mongol, Baotou; Shanxi, Lai Yuan, and Lu Liang	130	
Barite	9X Minerals LLC	Guizhou, Dejiang	60	
Do.	Guizhou Saboman Import & Export Co. Ltd.	Guizhou, Guiding	1,000	
Do.	China National Nonmetallic Industry Corp.	Guizhou, Xiangshou	NA	
<b>Beryllium:</b>				
Metal	metric tons	Minmetals Beryllium Industry Co. Ltd. (China Minmetals Corp.)	Hunan, Changsha	5
Do.	do.	Fuyun Hengsheng Beryllium Industry Co. Ltd.	Xinjiang, Fuyuun	2
Oxide	do.	Minmetals Beryllium Industry Co. Ltd. (China Minmetals Corp.)	Hunan, Changsha	150
Do.	do.	Emeishan Zhongshan New Material Technology Co. Ltd.	Sichuan, Emeishan	150
Do.	do.	Fuyun Hengsheng Beryllium Industry Co. Ltd.	Xinjiang, Fuyuun	100
Bismuth, metal	do.	Guangzhou Smelter Co. Ltd. (China Great Wall Aluminium Industry Co. Ltd.)	Guangdong, Guangzhou	300
Do.	do.	Jiyuan Wangyang smelter (Jiquan Wangyang Smeltery Group Co. Ltd.)	Henan, Jiaozuo	200
Do.	do.	Hunan Jinwang Bismuth Industry Co. Ltd.	Hunan, Chenzhou	NA
Do.	do.	Hunan Bismuth Industry Co. Ltd.	Hunan, Chouzhou	3,500
Do.	do.	Shizhuyuan Nonferrous Metals Co. Ltd.	Hunan, Shizhuyuan	1,200
Do.	do.	Zhuzhou Smelter Group Co. Ltd.	Hunan, Zhuzhou	350
Do.	do.	Chinalco Yunnan Copper Group Co. Ltd.	Nei Mongol, Chifeng	300
Do.	do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	300

See footnotes at end of table.

TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>c</sup>
Boron, ore		Qinghai Zhongtian Boron-Lithium Mining Co. Ltd.	Qinhai, Haixi	300
Do.		Liaoning Jinma (Kuandian) Boron Mine Co. Ltd.	Liaoning, Dandong	40
Do.		Liaoning Dashiqiao Maolong Boron Industry Co. Ltd.	Liaoning, Dashiqiao	70
Cadmium, refinery, primary	do.	Zhuzhou smelter (Zhuye Torch Metals Co. Ltd.)	Hunan, Zhuzhou	1,000
Do.	do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	800
Cement, clinker		Anhui Conch Cement Co. Ltd.	Auhui, Wuhu	246,000
Do.		China Building Materials Group Co. Ltd.	Beijing	390,000
Do.		Tangshan Jidong Cement Co. Ltd.	Hebei, Tangshan	105,000
Do.		Tian Rui Group Cement Co. Ltd.	Henan, Ruzhou	28,400
Do.		Henan Tongli Cement Co. Ltd.	Henan, Zhengzhou	12,000
Do.		China Gezhouba Group Cement Co. Ltd.	Hubei, Jingmen	17,000
Do.		Jiangsu Jinfeng Cement Group Co. Ltd.	Jiangsu, Changzhou	13,000
Do.		Asia Cement (China) Holding Corp.	Jiangxi, Ruichang	20,600
Do.		Jilin Yatai Group Co. Ltd.	Jilin, Changchun	20,000
Do.		Yaobai Special Cement Group Co. Ltd.	Shaanxi, Xi'an	20,000
Do.		Shandong Shanshui Cement Group Co. Ltd.	Shandong, Jinan	50,300
Do.		China Resources Cement Holdings Ltd.	Southern China	65,000
Do.		Lafarge China Cement Ltd. (LafargeHolcim Ltd.)	Various locations	62,300
Do.		Xinjiang Qingsong Building Material Chemical Co. Ltd.	Xinjiang, Aksu	16,000
Do.		Yunnan Cement Building Materials Group Co. Ltd.	Yunnan, Kunming	16,000
Do.		Red Lion Holdings Ltd.	Zhejiang, Jinhua	48,500
Chromium, chromite		Tibet Mineral Devevelopment Co. Ltd.	Xizang, Qusong	40
Clay, Kaolin		Longyan Kaolin Co. Ltd.	Fujian, Longyan	600
Do.		Yankuang Beihai Kaolin Co. Ltd.	Guangxi, Beihai	300
Do.		Shaoguan Junyu Kaolin Co. Ltd.	Guangdong, Shaoguan	50
Do.		Yunnan Xishuangbanna Wanxiang Mining Co. Ltd.	Yunnan, Jinghong	50
Coal		Jizhong Energy Group Co. Ltd.	Hebei, Handan	75,400
Do.		Kailuan (Group) Co. Ltd.	Hebei, Tangshan	24,800
Do.		Henan Energy and Chemical Industry Group Co. Ltd.	Henan, Zhengzhou	80,700
Do.		China National Coal Group Corp.	Mines in Nei Mongol, Shanxi Jiangsu and other Provinces	210,000
Do.		National Energy Investment Group Co. Ltd.	Mines in Nei Mongol, Xinjiang, and other Provinces	515,000
Do.		Shaanxi Coal and Chemical Industry Group Co. Ltd.	Shaanxi, Chengcheng	178,000
Do.		Shandong Energy Group Co. Ltd.	Shandong, Jinan	111,000
Do.		Yanzhou Coal Mining Co. Ltd.	Shandong, Jining	166,000
Do.		Shanxi Lu'an Mining Group Co., Ltd.	Shanxi, Changzhi	83,500
Do.		Jinneng Group Co. Ltd.	Shanxi, Datong	92,200
Do.		Datong Coal Mine Group Co. Ltd.	do.	180,000
Do.		Shanxi Coking Coal Group Co. Ltd.	Shanxi, Taiyuan	105,000
Do.		Yangquan Coal Industry Group Co., Ltd.	Shanxi, Yangqian	83,800
Cobalt, Co content:				
Mine	metric tons	Jinchuan Group Co. Ltd.	Gansu, Jinchang	2,200
Do.	do.	Xinjiang Xinxin Mining Industry Co. Ltd.	Xinjiang, Fuyun	110
Do.	do.	Yuanjiang Nickel Industry Co. Ltd.	Yunnan, Yuxi	80
Refined	do.	Nanjing Hanrui Cobalt Co. Ltd.	Anhui, Chuzhou and Jiangsu, Nanjing	4,500
Do.	do.	Jinchuan Group Co. Ltd.	Gansu, Jinchang	11,000
Do.	do.	Guangdong Jiana Energy Technology Co. Ltd.	Guangdong, Guangzhou	8,000
Do.	do.	Zhuhai Kelixin Metal Material Co., Ltd.,	Guangdong, Zhuhai	4,000
Do.	do.	Tengyuan Cobalt New Material Co. Ltd.	Jiangxi, Ganzhou	6,500

See footnotes at end of table.



TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>c</sup>
Cobalt, Co content:—Continued				
Refined—Continued	metric tons	GEM Co. Ltd.	Recycling plants in multiple Provinces	29,000
Do.	do.	Yantai Kaishi Industrial Co. Ltd.	Shandong, Yantai	4,000
Do.	do.	Tianjin Maolian Technology Co. Ltd.	Tianjin	4,000
Do.	do.	Huayou Cobalt Co. Ltd.	Zhejiang, Tongxiang	29,000
Copper:				
Mine, Cu content		Anhui Tongling Nonferrous Metals Group Co. Ltd.	Anhui, Anqing	47
Do.		Zhongjin Gold Corp. Ltd.	Anhui, Huaipei	2
Do.		Tongling Nonferrous Metals Group Holding Co. Ltd.	Anhui, Tongling	16
Do.		China Shen Zhou Mining & Resources, Inc.	Beijing	1
Do.		China Gold International Resources Corp. Ltd.	Central Xizang	75
Do.		Zijin Mining Group Co. Ltd.	Fujian, Longyan	139
Do.		Baiyin Nonferrous Metals Group Co. Ltd.	Gansu, Baiyin	30
Do.		Jinchuan Group Co. Ltd.	Gansu, Jinchang	10
Do.		Gansu Yangba Copper Industry Co. Ltd.	Gansu, Yangba	20
Do.		Guangdong Rising Assets Management Co. Ltd.	Guangdong, Shaoguang	10
Do.		Heilongjiang Liujiu Mining Co. Ltd.	Heilongjiang, Longjiang	22
Do.		Hubei Jiuzhou Mining Co. Ltd.	Hubei, Daye	10
Do.		Hubei Sanxin Gold and Copper Co. Ltd.	do.	14
Do.		China Daye Nonferrous Metals Mining Ltd.	Hubei, Huangshi	26
Do.		Western Mining Co. Ltd.	Jiangxi, Changdu	125
Do.		Jiangxi Copper Co. Ltd.	Jiangxi, Dexing	255
Do.		Wanguo International Mining Group Ltd.	Jiangxi, Yifeng	4
Do.		Zijin Mining Group Co. Ltd.	Jilin, Hunchun	10
Do.		Chinalco Yunnan Copper Group Co. Ltd.	Yunnan, Kunming	113
Do.		China Nonferrous Metal Mining (Group) Co. Ltd.	Liaoning, Manchu	10
Do.		Western Mining Co. Ltd.	Qinghai, Xining	13
Do.		Zouping Mining Industry Co. Ltd.	Shandong, Binzhou	3
Do.		Shanxi Zhongtiaoshan Nonferrous Metal Group Co. Ltd.	Shanxi, Datong	3
Do.		Diaoquan Silver Copper Mining Industry Co. Ltd.	Shanxi, Lingqiu	5
Do.		Shanxi Zhongtiaoshan Nonferrous Metal Group Co. Ltd.	Shanxi, Zhongtiaoshan	30
Do.		Xinjiang Nonferrous Metals Industrial (Group) Co.	Xinjiang, Baicheng	2
Do.		Xinjiang Ashele Copper Co. Ltd.	Xinjiang, Habahe	50
Do.		Xinjiang Yakesi Resources Co. Ltd.	Xinjiang, Huangshan	10
Do.		Zhaojin Mining Industry Co. Ltd.	Xinjiang, Kashgar	10
Do.		Xinjiang Zhongbang Mineral Industry Co. Ltd.	Xinjiang, Nileke	1
Do.		Daye Nonferrous Metals Group Holding Co. Ltd.	Xinjiang, Sareke	9
Do.		Xinjiang Xinxin Mining Industry Co. Ltd.	Xinjiang, Urumqi	10
Do.		China National Gold Group Corp.	Xinjiang, Wunuketushan	61
Do.		Yunnan Diqing Nonferrous Metals Co. Ltd.	Yunnan, Diqing	20
Do.		Chinalco Yunnan Copper Group Co. Ltd.	Yunnan, Kunming	44
Do.		Yuxi Resources Corp.	Yunnan, Yuxi	10
Do.		Hangzhou Jiantong Group Co. Ltd.	Zhejiang, Hangzhou	5
Refined		Jinchang smelter (Anhui Tongling Nonferrous Metals Group Holding Co. Ltd.)	Anhui, Tongling	170
Do.		Jinlong smelter (Anhui Tongling Nonferrous Metals Group Holding Co. Ltd.)	do.	400
Do.		Wuhu smelter (Hengxin Copper Industry Group Co.)	Anhui, Wuhu	120
Do.		Zijin Copper Co. Ltd.	Fujian, Shanghang	230
Do.		Baiyin Nonferrous Metals Group Co. Ltd.	Gansu, Baiyin	200
Do.		Jinchuan Group Co. Ltd.	Gansu, Jinchuan	550
Do.		do.	Guangxi, Fangchenggang	400

See footnotes at end of table.

TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>c</sup>
<b>Copper:—Continued</b>			
Refined—Continued	Guangxi Nanguo Copper Industry Co. Ltd.	Guangxi, Nanguo	300
Do.	Chinalco Luoyang Copper Processing Co. Ltd.	Henan, Luoyang	240
Do.	Daye Nonferrous Metals Group Holding Co. Ltd.	Hubei, Daye	300
Do.	Zhangjiagang United Copper Co. (Anhui Tongling Nonferrous Metals Group Holding Co. Ltd.)	Jiangsu, Zhangjiagang	200
Do.	Guixi smelter (Jiangxi Copper Co. Ltd.)	Jiangxi, Guixi	1,200
Do.	Dongfang Copper Co. (Huludao Nonferrous Metals Group Co. Ltd.)	Liaoning, Huludao	100
Do.	Chifeng Fubang Copper Co. Ltd.	Nei Mongol, Chifeng	100
Do.	Chifeng Jingeng Copper Co. Ltd.	do.	582
Do.	Chifeng Yunnan Copper Nonferrous Metals Co. Ltd.	do.	250
Do.	Shandong Dongying Fangyuan Nonferrous Metals Co. Ltd.	Shandong, Dongying	400
Do.	Yanggu Xiangguang Copper Co. Ltd. (Shandong Fengxiang Group Co. Ltd.)	Shandong, Yanggu	600
Do.	Shandong Jinsheng Nonferrous Metals Co. Ltd.	Shandong, Linyi	100
Do.	Yantai Penghui Copper Industry Co. Ltd.	Shandong, Yantai	200
Do.	Taiyuan Copper Industry Co. Ltd.	Shanxi, Taiyuan	100
Do.	Yuanqu smelter (Zhongtiaoshan Nonferrous Metals Group Co. Ltd.)	Shanxi, Yuangu	130
Do.	Huili Kumpeng Co. Ltd.	Sichuan, Huili	100
Do.	Tianjin Datong Copper Co. Ltd.	Tianjin	200
Do.	Xinjiang Wuxin Copper Industry Co. Ltd.	Xinjiang, Fukang	100
Do.	Yunnan smelter (Chinalco Yunnan Copper Group Co. Ltd.)	Yunnan, Kunming	500
Do.	Hangzhou Fuchunjiang Smelting Co. Ltd.	Zhejiang, Fuchunjiang	100
Do.	Lanxi Zili Environmental Protection Technology Co. Ltd.	Zhejiang, Lanxi	100
<b>Coke, metallurgical</b>	China Risun Coal Chemicals Group Ltd.	Beijing	5,680
Do.	Hebei Kailuan Energy Chemical Co., Ltd.	Hebei, Tangshan	4,270
Do.	Heilongjiang Baotailong New Material Co. Ltd.	Heilongjiang, Qitaihe	1,580
Do.	Shaanxi Heimaoc Coking Co. Ltd.	Shaanxi, Hancheng	3,240
Do.	Shandong Jinneng Technology Co. Ltd.	Shandong, Qihe	2,300
Do.	Shanxi Antai Group Co. Ltd.	Shanxi, Jinzhong	1,800
Do.	Shanxi Coking Co. Ltd.	Shanxi, Taiyuan	3,600
Do.	Shanxi Meijin Energy Co., Ltd.	do.	5,040
Do.	Yunnan Coal Energy Co. Ltd.	Yunnan, Kunming	1,980
<b>Ferroalloys:</b>			
<b>Ferrochromium</b>	Beijing Xiongwei Guangda Investment Management Co. Ltd.	Beijing	190
Do.	Henan Xibao Metallurgical Materials Group Co. Ltd.	Henan, Nanyang	175
Do.	Mingtuo Group Chrome Technology Co. Ltd.	Nei Mongol, Baotou	530
Do.	Huade County Zhongtai Ferronickel Co. Ltd.	Nei Mongol, Huade	130
Do.	Ningxia Tianyuan Manganese Industry Co. Ltd.	Ningxia, Zhongning	235
Do.	Shanxi Taiyuan Iron and Steel Wanbang Furnace Charge Co. Ltd.	Shanxi, Jinzhong	285
Do.	Xinganglian Metallurgical Co. Ltd.	Shanxi, Taituan	980
Do.	Jiangxian Mingmaite Co. Ltd.	Shanxi, Yuncheng	170
Do.	Sichuan Yuanda Juhua Industrial Co. Ltd.	Sichuan, Chengdu	165
Do.	Yihui Group Co. Ltd.	do.	340
<b>Ferromanganese</b>	Guangxi Qinzhou Hengxing Manganese Industry Co. Ltd.	Guangxi, Qinzhou	70
Do.	CITIC Jinzhou Ferroalloy Co. Ltd.	Liaoning, Jinzhou	120
Do.	Inner Mongolia Chayouqianqi Mengfa Ferroalloy Co. Ltd.	Nei Mongol, Chayouqianqi	180
Do.	Ulanqab Xufeng Xinchuang Industrial Co. Ltd.	Nei Mongol, Ulanqab	100
Do.	Ningxia Shengyan Industrial Group Fuhua Metallurgical Co. Ltd.	Ningxia, Shizuishan	71
Do.	Shandong Shengrong New Material Co. Ltd.	Shandong, Heze	80

See footnotes at end of table.

TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>c</sup>
<b>Ferroalloys—Continued</b>			
Ferromanganese—Continued	Jiaocheng Yiwang Ferroalloy Co. Ltd.	Shanxi, Jiaocheng	220
Do.	Shanxi Dongfang Resources Development Co. Ltd.	Shanxi, Jishan	400
Do.	Lingqiu County Jinyu Ferroalloy Co. Ltd.	Shanxi, Lingqiu	80
Do.	Yunnan Wenshan Dounan Manganese Industry Co. Ltd.	Yunnan, Yanshan	73
Ferromolybdenum	China Molybdenum Co. Ltd.	Henan, Luanchuan	20
Do.	Luoyang Bohua Industrial Co. Ltd.	Henan, Luoyang	6
Do.	Chaoyang Jinda Molybdenum Industry Co. Ltd.	Liaoning, Chaoyang	9
Do.	Huludao Rongxin Molybdenum Industry Co. Ltd.	Liaoning, Huludao	7
Do.	Huludao Wanfeng Metal Co. Ltd.	do.	13
Do.	Jinzhou Xinghe Metal Co. Ltd.	Liaoning, Jinzhou	9
Do.	Jinzhou Xinhualong Molybdenum Industry Co. Ltd.	do.	15
Do.	Linghai Hengtai Molybdenum Industry Co. Ltd.	Liaoning, Linghai	7
Do.	Jinduicheng Molybdenum Industry Group Co. Ltd.	Shaanxi, Huaxian	19
Do.	China Shaanxi Nuclear Molybdenum Industry Co. Ltd.	Shaanxi, Xi'an	5
Ferronickel, nickel pig iron average 9.2% Ni content	Fujian Liande Enterprise Co. Ltd.	Fujian, Dening	210
Do.	Fujian Dingxin Industrial Co. Ltd.	Fujian, Fu'an	320
Do.	Guangdong Guangqing Metal Technology Co. Ltd.	Guangdong, Yangjiang	250
Do.	Guangdong Century Qingshan Nickel Industry Co. Ltd.	do.	190
Do.	Suqian Huiran Industrial Co. Ltd.	Jiangsu, Suqian	300
Do.	Jiangsu Delong Nickel Industry Co. Ltd.	Jiangsu, Yancheng	830
Do.	Naiman Banner Heshuo Composite Materials Co. Ltd.	Nei Mongol, Tongliao	210
Do.	Liaoning Baobo Technology Co. Ltd.	Liaoning, Liaoyang	120
Do.	Liaoning Shengyun Industrial Development Co. Ltd.	Liaoning, Yingkou	120
Do.	Shandong Xinhai Technology Co. Ltd.	Shandong, Linyi	1,900
Ferrosilicon	Tengda Northwest Ferroalloy Co. Ltd.	Gansu, Yong Cheng	159
Do.	Inner Mongolia Junzheng Energy & Chemical Co. Ltd.	Nei Mongol, Wuhai	351
Do.	Ordos Xijing Mining and Metallurgy Co. Ltd.	Nei Mongol, Ordos	1,250
Do.	Ningxia Sanyuan Zhongtai Metallurgical Co. Ltd.	Ningxia, Zhongwei	214
Do.	Ningxia Xinhua Industrial Group Co. Ltd.	do.	110
Do.	Ningxia Zhongwei Maoye Smelting Co. Ltd.	do.	113
Do.	Ningxia Zhongwei Yinhe Smelting Co. Ltd.	do.	117
Do.	Qinghai Belden High Purity Materials Development Co. Ltd.	Qinghai, Xining	150
Do.	Qinghai Huadian Ferroalloy Co. Ltd.	do.	160
Do.	Qinghai Kaiyuan Metal Materials Co. Ltd.	do.	96
Ferrovandium	HBIS Chengde Vanadium and Titanium New Materials Co. Ltd. (HBIS Group Co. Ltd.)	Hebei, Chengde	9
Do.	Chaoyang Boyuan Metal Industry Co. Ltd.	Liaoning, Chaoyang	4
Do.	Jinzhou Xinwanbo Metal Materials Co. Ltd.	Liaoning, Jinzhou	10
Do.	Yingkou Shengdong Refractories Co. Ltd.	Liaoning, Yingkou	3
Do.	Pangang Group Vanadium Titanium Resources Co. Ltd.	Sichuan, Panzhihua	10
Do.	Pangang Group Xichang Steel & Vanadium Co. Ltd.	Sichuan, Xichang	18
Silicomanganese	Chongqing Dalang Metallurgical New Materials Co. Ltd.	Chongqing	460
Do.	Guangxi Tiandong Shengjin New Materials Co. Ltd.	Guangxi, Tiandong	340
Do.	Guizhou Jinyuan Suiyang Industry Co. Ltd.	Guizhou, Zunyi	280
Do.	Inner Mongolia Xinchuang Metallurgical Co. Ltd.	Nei Mongol, Wulanchabu	380
Do.	Jilin Ferroalloy Co. Ltd.	do.	350
Do.	Ulan Chabu Xiongwei Guangda New Materials Co. Ltd.	do.	360
Do.	Ningxia Jiyuan Metallurgical Group Co. Ltd.	Ningxia, Pingluo	340
Do.	Pingluo Wanshun Metal and Chemical Co. Ltd.	do.	370
Do.	Ningxia Shengyan Industrial Group Co. Ltd.	Ningxia, Shizuishan	480
Do.	Shizuishan Huiyi Metallurgical Industry and Trade Co. Ltd.	do.	350

See footnotes at end of table.

TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>c</sup>
Fluorspar		Inner Mongolia Huasheng Fluorite Mining Co. Ltd.	Nei Mongol, Ulanqab	300
Do.		Jinshi Resources Group Co. Ltd.	Zhejiang, Hangzhou	500
Do.		Zhejiang Wuyi Shenlong Flotation Co. Ltd.	Zhejiang, Wuyi	300
Gallium	metric tons	Zhuhai SEZ Fangyuan Inc.	6 plants in Guangxi, Jingxi Henan, Dengfeng; Henan, Lushan; Shandong, Nanchuan; Shandong, Zouping; and Shanxi, Yuanping	130
Do.	do.	Pingguo Aluminum Co. [Aluminum Corporation of China (Chinalco)]	Guangxi, Pingguo	40
Do.	do.	Chalco Zunyi Aluminum Co. Ltd. [Aluminum Corporation of China (Chinalco)]	Guizhou, Zunyi	40
Do.	do.	Shandong Aluminium Industry Co. Ltd.	Shandong, Zibo	20
Do.	do.	Shanxi Zhaofeng Aluminum & Power Co. Ltd.	Shanxi, Yangquan	25
Gas, natural	million cubic meters	China National Offshore Oil Corp. (CNOOC)	Offshore fields at Bohai, East China Sea, and South China Sea	9,000
Do.	do.	China National Petroleum Corp. (CNPC)	Nei Mongol, Qinghai, Sichuan, and Xinjiang	110,000
Do.	do.	China Petroleum & Chemical Corp. (Sinopec Corp.)	Nei Mongol, Sichuan, and other Provinces	28,000
Gas, liquefied natural gas		Inner Mongolia Xingsheng Natural Gas Co. Ltd.	Nei Mongol, Erdos	500
Do.		Shaanxi Zhongyuan Green Energy Natural Gas Co. Ltd.	Shaanxi, Yulin	810
Do.		Xinjiang Guanghui New Energy Co. Ltd.	Xinjiang, Hami	550
Germanium	metric tons	Shaoguan smelter (Shenzhen Nonfemet Co. Ltd.)	Guangdong, Shaoguan	30
Do.	do.	Nanjing Germanium Co. Ltd.	Jiangsu, Nanjing	30
Do.	do.	Nei Mongol Xilingol Tongli Germanium Industry Co. Ltd.	Nei Mongol, Xilinhot	20
Do.	do.	Shanghai Lontai Copper Co. Ltd.	Shanghai	10
Do.	do.	Yunnan Lincang Xinyuan Germanium Industrial Co. Ltd.	Yunnan, Lincang	50
Do.	do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	60
Gold:				
Mine, Au content	do.	Zijin Mining Group Co. Ltd.	Fujian, Shanghang	18
Do.	do.	China National Gold Group Corp.	Henan, Lingbao	41
Do.	do.	Jinyuan Mining Co. Ltd.	do.	3
Do.	do.	Hunan Gold Group Co. Ltd.	Hunan, Changsha	5
Do.	do.	Yintai Gold Group Co. Ltd.	Nei Mongol, Xilin Gol	6
Do.	do.	Shandong Gold Group Co. Ltd.	Shandong, Jinan	40
Do.	do.	Shandong Zhongkuang Group Co. Ltd.	Shandong, Yantai	5
Do.	do.	Shandong Zhaojin Gold & Silver Refinery Co. Ltd.	Shandong, Zhaoyuan	22
Do.	do.	Western Region Gold Co. Ltd.	Xinjiang, Urumqi	3
Do.	do.	Yunnan Gold Mining Group Co. Ltd.	Yunnan, Kunming	9
Refined	do.	Tongling Nonferrous Metals Group Holding Co. Ltd.	Anhui, Tongling	NA
Do.	do.	Zijin Copper Co. Ltd.	Fujian, Shanghang	5
Do.	do.	Seemine Gold Co. Ltd.	Gansu, Lanzhou	NA
Do.	do.	Guangdong Jinding Gold Ltd.	Guangdong, Gaoyao	NA
Do.	do.	Shenzhen Zhonghenglong Industrial Co. Ltd.	Guangdong, Shenzhen	150
Do.	do.	Yuguang Gold-Lead Co. Ltd.	Henan, Jiyuan	5
Do.	do.	China National Gold Group Corp.	Henan, Lingbao	10
Do.	do.	Lingbao Jinyuan Mining Co. Ltd. Tonghui Refinery Branch	do.	36
Do.	do.	Lingbao Gold Group Co. Ltd.	Henan, Luoyang	12
Do.	do.	Luoyang Zijin Yinhuai Gold Refinery Co. Ltd.	do.	65
Do.	do.	Zhongyuan Gold Smelter Co. Ltd. (Zhongjin Gold Co. Ltd.)	Henan, Sanmenxia	30

See footnotes at end of table.



TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>c</sup>
Gold:—Continued				
Refined—Continued	metric tons	Inner Mongolia Qiankun Gold and Silver Refinery Share Co. Ltd.	Nei Mongol, Hohhot	NA
Do.	do.	Daye Nonferrous Metals Group Holding Co. Ltd.	Hubei, Daye	20
Do.	do.	Hunan Chenzhou Mining Group Co. Ltd.	Hunan, Huaihua	50
Do.	do.	Zhuzhou Smelter Group Co. Ltd.	Hunan, Zhuzhou	NA
Do.	do.	Metalor Technologies (Suzhou) Ltd.	Jiangsu, Suzhou	NA
Do.	do.	Soochow Gold Group Co. Ltd.	do.	NA
Do.	do.	Jiangxi Copper Co. Ltd.	Jiangxi, Guixi	20
Do.	do.	China Gold Group Jiapigou Mining Co. Ltd.	Jilin, Huadian	NA
Do.	do.	Huadian Gold Co. Ltd.	do.	NA
Do.	do.	Shaanxi Gold Group Xi'an Qinjin Co. Ltd.	Shaanxi, Xi'an	NA
Do.	do.	Laizhou Gold Co.	Shandong, Laizhou	15
Do.	do.	Penglai Penggang Gold Industry Co. Ltd.	Shandong, Penglai	NA
Do.	do.	Shandong Yanggu Xiangguang Co. Ltd.	Shandong, Yanggu	20
Do.	do.	Shandong Humon Smelting Co. Ltd.	Shandong, Yantai	50
Do.	do.	Yantai Penghui Copper Industry Co. Ltd.	do.	5
Do.	do.	Shandong Zhaojin Gold & Silver Refinery Co. Ltd.	Shandong, Zhaoyuan	100
Do.	do.	Yantai Guodasafina High-tech Environmental Refinery Co. Ltd.	do.	10
Do.	do.	Zhaoyuan Gold Co. Ltd.	do.	15
Do.	do.	Shanghai Tiancheng Gold Co. Ltd.	Shanghai	NA
Do.	do.	Shanghai Xinye Copper Industry Co. Ltd.	do.	NA
Do.	do.	Great Wall Gold Silver Refinery (China Banknote Printing and Minting Corp.)	Sichuan, Chengdu	100
Do.	do.	Sichuan Tianze Precious Metals Co. Ltd.	do.	150
Do.	do.	Urumqi Tianshan Star Precious Metal Smelting Co. Ltd.	Xinjiang, Urumqi	NA
Do.	do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	130
Do.	do.	Zijin Mining Group Gold Smelting Co. Ltd.	Zhejiang, Fuye	NA
Graphite		Hensen Graphite Co. Ltd.	Heilongjiang, Jiangsu, and Nei Mongol	30
Do.		Jixi Aoyu Graphite Co. Ltd.	Heilongjiang, Jixi	100
Do.		Jixi Liumao Graphite Resources Co. Ltd.	do.	80
Do.		Nei Mongol Xinghe Jingxin Graphite Co. Ltd.	Nei Mongol, Xinghe	10
Do.		Qingdao Yanxin Graphite Products Co. Ltd.	Shandong, Qingdao	28
Gypsum, mine		Hebei Xingtai Shuanghua Gypsum Products Co. Ltd.	Hebei, Xingtai	NA
Do.		Henan Yongtai Gypsum Co. Ltd.	Henan, Sanmenxia	850
Do.		Hubei Jingmen Yulian Gypsum Co. Ltd.	Hubei, Jingmeng	500
Do.		Hubei Shuangxing Gypsum Co. Ltd.	do.	NA
Do.		Pizhou Huanyu Gypsum Co. Ltd.	Jiangsu, Pizhou	NA
Do.		Ningxia Jinruiyuan Industry and Trade Co. Ltd.	Ningxia, Yanchi	NA
Do.		Ningxia Qingshan Sanyuan Mining Co. Ltd.	do.	NA
Do.		Ningxia Yanchi Qianyuan Gypsum Mining Co. Ltd.	do.	200
Do.		Ningxia Yanchi Yulian Gypsum Co. Ltd.	do.	NA
Do.		Ninhxia Yanchi Shunning Gypsum Co. Ltd.	do.	NA
Do.		Shanxi Taiyuan Xishan Gypsum Mine Co. Ltd.	Shanxi, Taiyuan	NA
Indium, refinery	metric tons	Shaoguan smelter (Shenzhen Nonfemet Co. Ltd.)	Guangdong, Shaoguan	25
Do.	do.	Guangxi Tanghan Zinc & Indium Co. Ltd.	Guangxi, Hechi	30
Do.	do.	Laibin smelter (Liuzhou Huaxi Group Co.)	Guangxi, Laibin	60
Do.	do.	Guangxi Debang Technology Co. Ltd.	Guangxi, Liuzhou	120
Do.	do.	Liuzhou Zinc Products Co. Ltd.	do.	20
Do.	do.	Yintai Technology Co. Ltd.	do.	40
Do.	do.	Yuguang Gold-Lead Co. Ltd.	Henan, Jiyuan	10

See footnotes at end of table.

TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>c</sup>
Indium, refinery— Continued	metric tons	Hsikwangshan Twinkling Star Antimony Co. Ltd. (China Minmetals Corp.)	Hunan, Lengshuijiang	7
Do.	do.	Xiangtan Zhengtan Nonferrous Metal Co. Ltd.	Hunan, Xiangtan	75
Do.	do.	Zhuzhou Smelter Group Co. Ltd.	Hunan, Zhuzhou	60
Do.	do.	Nanjing Germanium Co. Ltd.	Jiangsu, Nanjing	150
Do.	do.	Nanjing Sanyou Electronic Material Co. Ltd.	do.	50
Do.	do.	Huludao Nonferrous Metals Group Co. Ltd.	Liaoning, Huludao	50
Do.	do.	Yunnan Chengfeng Nonferrous Metals Co. Ltd.	Yunnan, Gejiu	10
Do.	do.	Yunnan Mengzi Mining and Smelting Co. Ltd.	Yunnan, Honghe	30
Iron ore, mine, concentrate		Yingliu Mining Co. Ltd.	Aihui, Hefei	1,250
Do.		China Minmetals Corp.	Mines in multiple Provinces	8,730
Do.		Huaxia Jianlong Mining Technology Co. Ltd.	do.	5,500
Do.		Metallurgical Corporation of China Ltd.	do.	591
Do.		Shoudu (Capital) Mining Co. Ltd.	do.	5,000
Do.		Chongqing Iron and Steel Group Co. Ltd.	Chongqing	2,000
Do.		Jiuquan Iron and Steel Co. Ltd.	Gansu, Jiayuguan	4,000
Do.		Dabaoshan Mining Co. Ltd.	Guangdong, Qujiang	1,670
Do.		Hainan Mining Co. Ltd.	Hainan, Changjiang	4,600
Do.		Aowei Holding Ltd.	Hebei, Laiyuan	15,800
Do.		Hebei Iron and Steel Group Co. Ltd.	Hebei, Tangshan	20,000
Do.		Baowu Steel Group Corp. Ltd.	Hubei, Wuhan	6,350
Do.		Meishan Metallurgical Co. Ltd.	Jiangsu, Nanjing	2,000
Do.		Nanjing Iron & Steel Co. Ltd.	do.	2,500
Do.		Xinyu Iron & Steel Group Co. Ltd.	Jiangxi, Xinyu	527
Do.		Tonghua Iron & Steel Group Co. Ltd.	Jilin, Changchun	782
Do.		Banshigou Iron Mine Mining Co. Ltd.	Jilin, Hunjiang	1,400
Do.		Anshan Mining Co. Ltd.	Liaoning, Anshan	30,000
Do.		Benxi Iron and Steel Co. Ltd.	Liaoning, Benxi	8,000
Do.		China Hanking Holdings Ltd.	do.	4,000
Do.		Baotou Iron and Steel and Rare Earth Co. Ltd.	Nei Mongol, Baotou	10,000
Do.		Shandong Taishan Sunlight Group Co. Ltd.	Shandong, Laiwu	2,000
Do.		Add New Energy Investment Holdings Group Ltd.	Shandong, Yangzhuang	2,300
Do.		Shandong Jinling Mining Co. Ltd.	Shandong, Zibo	650
Do.		Shandong Iron and Steel Group Co. Ltd.	Shandong, Jinan	3,000
Do.		Taiyuan Iron and Steel Co. Ltd.	Shanxi, Taiyuan	12,000
Do.		China Vanadium Titano-Magnetite Mining Co. Ltd.	Sichuan, Huili	1,890
Do.		Panzhuhua Mining Co. Ltd. [Panzhuhua Iron and Steel Group Co. Ltd. (Pangang)]	Sichuan, Panzhihua	13,000
Do.		Xinjiang Yaxing Mining Co. Ltd.	Xinjiang, Akto	2,000
Do.		Zijin Mining Group Co. Ltd.	Xinjiang, Shanshan	2,000
Do.		Kunming Iron and Steel Co. Ltd.	Yunnan, Kunming	2,500
Do.		Zhejiang Lizhu Iron Mine Corp.	Zhejiang, Shaoxing	355
Iron and steel, raw steel		Beijing Jianlong Heavy Industry Group Co. Ltd.	Beijing	32,000
Do.		Shougang Iron and Steel Co. Ltd.	do.	30,000
Do.		Fangda Group Co. Ltd.	Guangdong, Shenzhen	16,000
Do.		Guangxi Liuzhou Iron and Steel Group Co. Ltd.	Guangxi, Liuzhou	15,000
Do.		Hebei Iron and Steel Group Co. Ltd. (HBIS)	Hebei, Handan	47,000
Do.		Baowu Steel Group Corp. Ltd.	Anhui, Maanshan; Hubei, Wuhan; and Shanghai	95,000
Do.		Hunan Valin Iron & Steel Group Co. Ltd.	Hunan, Changsha	25,000
Do.		CITIC Pacific Special Steel Holdings Ltd.	Jiangsu, Jiangyin	13,000
Do.		Shagang Group Co. Ltd.	Jiangsu, Zhangjiagang	42,000
Do.		Anshan Iron and Steel (Group) Co. Ltd.	Liaoning, Anshan	39,000

See footnotes at end of table.

TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>c</sup>
Iron and steel, raw steel— Continued	Benxi Iron and Steel Co. Ltd.	Liaoning, Benxi	16,000
Do.	Baotou Iron and Steel Group Co. Ltd.	Nei Mongol, Baotou	16,000
Do.	Shandong Dexing Group Co. Ltd.	Shandong, Dezhou	15,000
Do.	Shandong Iron and Steel Group Co. Ltd.	Shandong, Jinan	28,000
Do.	Rizhao Steel Holding Group Co. Ltd.	Shandong, Rizhao	15,000
Lead:			
Mine, Pb content	Shuikoushan Nonferrous Metals Co. Ltd.	Hunan, Hengyang	NA
Do.	Guangdong Dabaoshan Mining Co. Ltd.	Guangdong, Shaoguan	NA
Do.	Zhongjin Lingnan Nonferrous Metals Co. Ltd.	Guangdong, Shengzhen	50
Do.	Guangxi Nonferrous Metal Group Co. Ltd.	Guangxi, Nanning	NA
Do.	Jiangxi Tianyi Mining Co. Ltd.	Jiangxi, Guixi	NA
Do.	Inner Mongolia Yulong Mining Co. Ltd.	Nei Mongol, Bayanhubogacha	NA
Do.	Western Mining Co. Ltd.	Qinghai, Xining	NA
Do.	Tibet Huayu Mining Co. Ltd.	Tibet, Lhasa	NA
Do.	Xinjiang Qianxin Mining Co. Ltd.	Xinjiang, Fuyun	NA
Do.	Yunnan Jinding Zinc Industry Co. Ltd. (Sichuan Hongda Group Co. Ltd.)	Yunnan, Lanping	NA
Do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	50
Refinery	Jiuhua smelter (Anhui Tongling Nonferrous Metals Group Holding Co. Ltd.)	Anhui, Chizhou	80
Do.	Baiyin Nonferrous Metals Group Co. Ltd.	Gansu, Baiyin	80
Do.	Shaoguan smelter (Shenzhen Nonfemet Co. Ltd.)	Guangdong, Shaoguan	100
Do.	Hechi Nanfang Nonferrous Metals Smelting Co. Ltd.	Guangxi, Hechi	80
Do.	Laibin smelter (Liuzhou Huaxi Group Co.)	Guangxi, Laibin	100
Do.	Anyang smelter (Yubei Metal Co. Ltd.)	Henan, Anyang	160
Do.	Jiyuan Wangyang smelter (Jiquan Wangyang Smeltery Group Co. Ltd.)	Henan, Jiaozuo	200
Do.	Jinli smelter (Jiyuan Jinli Smelting Co. Ltd.)	Henan, Jiyuan	300
Do.	Jiyuan smelter (Yuguang Gold-Lead Co. Ltd.)	do.	300
Do.	Henan Lingye Co. Ltd.	Henan, Lingbao	100
Do.	Hanjiang smelter (Western Mining Co. Ltd.)	Hubei, Laohekou	50
Do.	Shuikoushan Nonferrous Metals Co. Ltd.	Hunan, Hengyang	150
Do.	Zhuzhou smelter (Zhuye Torch Metals Co. Ltd.)	Hunan, Zhuzhou	100
Do.	Xuzhou Chunxing Alloy Co. Ltd.	Jiangsu, Xuzhou	150
Do.	Jiangxi Jinde Lead Co. Ltd.	Jiangxi, Shangrao	80
Do.	Huludao Nonferrous Metals Group Co. Ltd.	Liaoning, Huludao	30
Do.	Western Mining Co. Ltd.	Qinghai, Xining	100
Do.	Shaanxi Dongling Group Co. Ltd.	Shaanxi, Baoji	100
Do.	Yunnan Tin Co. Ltd. (Yunnan Tin Corp.)	Yunnan, Gejiu	100
Do.	Yunnan Xinli Nonferrous Metals Co. Ltd.	Yunnan, Kunming	100
Do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	300
Lithium:			
Mine, LiCO <sub>3</sub> equivalent	Antai Mining Co. Ltd.	Chongqing	3
Do.	Yongxing Special Material Technology Co. Ltd.	Jiangxi, Yichun	5
Do.	Jiangxi Special Motor Co. Ltd.	do.	30
Do.	Qinghai Jintai Lithium Industry Co. Ltd.	Qinghai, Balun Mahai Lake	10
Do.	Qinghai Salt Lake Industry Group Co. Ltd.	Qinghai, Chaerhan Lake	10
Do.	Qinghai Bohua Lithium Industry Co. Ltd.	Qinghai, Da Qaidam Salt Lake	1
Do.	Qinghai Qaidam Xinghua Lithium Salt Co. Ltd.	do.	10
Do.	Qinghai East Taijinair Lithium Resources Co. Ltd.	Qinghai, East Taijinair Salt Lake	10
Do.	Tibet Mineral Devevelopment Co. Ltd.	do.	10
Do.	Qinghai CITIC Guoan Lithium Resources Co. Ltd.	Qinghai, West Taijinair Salt Lake	10

See footnotes at end of table.

TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>c</sup>
<b>Lithium:</b>			
Mine, LiCO <sub>3</sub> equivalent—Continued	Qinghai Hengxinrong Lithium Technology Co. Ltd.	Qinghai, West Taijinair Salt Lake	20
Do.	Minmetals Salt Lake Co. Ltd. (China Minmetals Corp.)	Qinghai, Yiliping Lake	10
Do.	Malkang Jinxin Mining Co. Ltd.	Sichuan, Dangba	28
Do.	Rongda Lithium Co. Ltd.	Sichuan, Tagong	8
Do.	Sichuan Yahua Industrial Group Co. Ltd.	Sichuan, Ya'an	8
Do.	Tibet City Development Investment Co. Ltd.	Xizang, Lungmu Tso Salt Lake	5
Do.	Tibet Mineral Devevelopment Co. Ltd.	Xizang, Zhabuye Salt Lake	5
Refinery, LiCO <sub>3</sub> equivalent	do.	do.	5
Do.	Shenzhen Shengxin Lithium Energy Group Co. Ltd.	Guangdong, Shenzhen	40
Do.	Guangxi Tianyuan New Energy Materials Co. Ltd.	Guangxi, Qinzhou	25
Do.	Jiangsu Ronghui General Lithium Industry Co. Ltd.	Jiangsu, Haimen	26
Do.	Jiangxi Ganfeng Lithium Co. Ltd.	Jiangxi, Xinyu	50
Do.	Jiangxi Nanshi Lithium Battery New Materials Co. Ltd.	Jiangxi, Yichun	34
Do.	Jiangxi Special Motor Co. Ltd.	do.	16
Do.	Lanke Lithium Industry Co. Ltd. (Qinghai Yanhu Industry Group Co. Ltd.)	Qinghai, Golmud	30
Do.	Qinghai CITIC Guoan Technology Development Co. Ltd.	do.	20
Do.	Qinghai Lithium Industry Co. Ltd.	Qinghai, Xining	10
Do.	Qinghai Hengxinrong Lithium Technology Co. Ltd.	Qinghai, Haixi Prefecture	20
Do.	Wudi Golden Bay Lithium Technology Co. Ltd.	Shandong, Binzhou	25
Do.	Shandong Ruifu Lithium Industry Co. Ltd.	Shandong, Feicheng	40
Do.	Sichuan Ni/Co Guorun New Material Co. Ltd.	Sichuan, Pengshan	2
Do.	Sichuan Shehong Lithium Co. Ltd.	Sichuan, Shehong	2
Do.	Sichuan Tianqi Lithium Industry Co. Ltd. (Chengdu Tianqi Group Co. Ltd.)	Sichuan, Suining	40
Do.	Sichuan Aba Guangsheng Lithium Industrial Co. Ltd.	Sichuan, Wenchuan	2
Do.	Sichuan Yahua Industrial Group Co. Ltd.	Sichuan, Ya'an	43
Do.	Xinjiang Haoxin Lithium Salt Development Co. Ltd. (formerly Xinjiang Lithium Co.)	Xinjiang, Urumqi	5
<b>Magnesium:</b>			
Mine, ore	Nanjing Yunhai Special Metal Co. Ltd.	Jiangsu, Nanjing	1,600
Metal, primary	do.	do.	100
Do.	Fugu Jingfu Coal Chemical Co. Ltd.	Shaanxi, Yulin	30
Do.	Fugu Taida Coal Chemical Co. Ltd.	do.	20
Do.	Shaanxi Tianyu Magnesium Industry Group Co. Ltd.	do.	50
Do.	Shanxi Bada Magnesium Industry Co. Ltd.	Shanxi, Wenxi	35
Do.	Shanxi Wenxi Regal Magnesium Industry Co. Ltd.	do.	55
Do.	Shanxi Yinguang Huasheng Magnesium Industry Co. Ltd.	do.	65
Alloy	Nanjing Yunhai Special Metal Co. Ltd.	Jiangsu, Nanjing	180
Do.	Magontec Xi'an Co. Ltd.	Shaanxi, Xi'an	40
Do.	Shaanxi Tianyu Magnesium Industry Group Co. Ltd.	Shaanxi, Yulin	10
Do.	Shanxi Wenxi Regal Magnesium Industry Co. Ltd.	Shanxi, Wenxi	70
Do.	Shanxi Wenxi Zhenxin Magnesium Industry Co. Ltd.	do.	40
Do.	Shanxi Bada Magnesium Industry Co. Ltd.	do.	20
<b>Manganese:</b>			
Mine, ore	Xiushan County Jiayuan Mining Co. Ltd.	Chongqing, Xiushan	300
Do.	CITIC Dameng Mining Co. Ltd.	Guangxi, Nanning	5,630
Do.	Songtao Sanhe Manganese Industry Group Co. Ltd.	Guizhou, Tongren	320
Do.	Zunyi Tianci Manganese Industry Group Co. Ltd.	Guizhou, Zunyi	286
Do.	Hubei Changyang Gucheng Manganese Co. Ltd.	Hubei, Yichang	446
Do.	Hunan Huayuan County Yufeng Manganese Industry Co. Ltd.	Hunan, Huayuan	307
Do.	Yunnan Wenshan Dounan Manganese Industry Co. Ltd.	Yunnan, Wenshan	300
Do.	Akta Kebang Manganese Manufacturing Co. Ltd.	Xingjiang, Kashgar	1,200

See footnotes at end of table.



TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>c</sup>
<b>Manganese:—Continued</b>				
Metal		Hunan Dongfang Mining Co. Ltd.	Hunan, Huayuan	44
Do.		Guangxi Xinzhen Manganese Industry Group Co. Ltd.	Guangxi, Daxin	30
Do.		Jingxi Baikuang Manganese Industry Co. Ltd.	Guangxi, Jingxi	25
Do.		CITIC Dameng Mining Co. Ltd.	Guangxi, Nanning	170
Do.		Songtao Sanhe Manganese Industry Group Co. Ltd.	Guizhou, Tongren	58
Do.		Guizhou Wuling Manganese Industry Co. Ltd.	do.	81
Do.		Zunyi Tianci Manganese Industry Group Co. Ltd.	Guizhou, Zunyi	37
Do.		China Manganese (Hubei) Technology Development Co. Ltd.	Hubei, Changyang	63
Do.		Ningxia Tianyuan Manganese Industry Co. Ltd.	Ningxia, Zhongning	557
Do.		Akta Kebang Manganese Manufacturing Co. Ltd.	Xingjiang, Kashgar	66
<b>Mercury:</b>				
Mine, ore		Guizhou Dalong Yinxing Mercury Co. Ltd.	Guizhou, Tongren	NA
Do.		Guizhou Hongling Mercury Co. Ltd.	do.	NA
Do.		Shaanxi Mercury and Antimony Technology Co. Ltd.	Shaanxi, Xi'an	NA
Smelter		Guizhou Hongling Mercury Co. Ltd.	Guizhou, Tongren	NA
Do.	metric tons	Guizhou Tongren Wanshan Hongjing Mercury Industry Co. Ltd.	do.	350
Do.	do.	Shaanxi Mercury and Antimony Technology Co. Ltd.	Shaanxi, Xi'an	NA
Chemical products	do.	Guizhou Tongren Wanshan Hongjing Mercury Industry Co. Ltd.	Guizhou, Tongren	7,000
Do.	do.	Guizhou Wanshan Minerals Co. Ltd.	do.	20,000
Molybdenum, mine, Concentrate		Fengning Xinyuan Mining Co. Ltd.	Hebei, Chengde	12
Do.		Yichun Luming Mining Co. Ltd.	Heilongjiang, Yichun	31
Do.		China Molybdenum Co. Ltd.	Henan, Luanchuan	33
Do.		Luanchuan Longyu Molybdenum Industry Co. Ltd.	do.	14
Do.		Luanchuan County Jinding Mining Co. Ltd.	do.	6
Do.		Jiangxi Copper Co. Ltd.	Jiangxi, Dexing	8
Do.		Jilin Daheishan Molybdenum Industry Co. Ltd.	Jilin, Jilin	6
Do.		Chifeng Ao Lun Hua Mining Co. Ltd.	Nei Mongol, Chifeng	6
Do.		China National Gold Group Inner Mongolia Mining Co. Ltd.	Nei Mongol, Manzhouli	14
Do.		Jinduicheng Molybdenum Industry Group Co. Ltd.	Shaanxi, Huaxian	39
<b>Nickel:</b>				
Mine, Ni content		Jinchuan Group Co. Ltd.	Gansu, Jinchuan	100
Do.		Jilin Jien Nickel Industry Co. Ltd.	Jilin, Pangshi	7
Do.		Qinghai Pingan Xinhai Resource Resources Development Co. Ltd.	Qinghai, Haidong	3
Do.		Sichuan Copper-Nickel Co. Ltd.	Sichuan, Huili	3
Do.		Xinjiang Xinxin Mining Industry Co. Ltd.	Xinjiang, Urumqi	12
Do.		Yunxi Group Yuanjiang Nickel Industry Co. Ltd.	Yunnan, Yuxi	5
Do.		Yunnan Henghao Nickel Industry Group Co. Ltd.	Yunnan, Kunming	2
Refined		Jinchuan Group Co. Ltd.	Gansu, Jinchuan	200
Do.		Guangxi Yulin Weinie Co. Ltd.	Guangxi, Bobai	18
Do.		Guangxi Yinyi Science and Technology Mine Metallurgy Co. Ltd.	Guangxi, Yulin	10
Do.		Jiangxi Jiangli Science and Technology Co. Ltd.	Jiangxi, Fenyi	50
Do.		Jilin Jien Nickel Industry Co. Ltd.	Jilin, Panshi	10
Do.		Vale Inc. New Nickel Materials (Dalian) Co. Ltd. (Vale S.A.)	Liaoning, Dalian	32
Do.		Shaanxi Huaze Nickel and Cobalt Metal Co. Ltd.	Shaanxi, Xi'an	5
Do.		Chengdu Electro-Metallurgy Factory Co. Ltd.	Sichuan, Chengdu	5
Do.		Huili Kunpeng Co. Ltd.	Sichuan, Huili	10
Do.		Sichuan Ni/Co Guorun New Material Co. Ltd.	Sichuan, Pengshan	10
Do.		Xinjiang Fukang smelter (Xinjiang Xinxin Mining Industry Co. Ltd.)	Xinjiang, Fukang	15
Do.		Xinjiang Xinxin Mining Industry Co. Ltd.	Xinjiang, Fuyun	7
Do.		Yuanjiang Nickel Industry Co. Ltd.	Yunnan, Yuxi	5

See footnotes at end of table.

TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>e</sup>
Niobium and tantalum, concentrate, gross weight	metric tons	Jiangxi Jiangte Mining Development Co. Ltd.	Mine in Jiangxi, Yichun	35
Do.	do.	Jiangxi Tungsten Industry Group Co. Ltd. (China Minmetals Corp.)	do.	500
Do.	do.	Jiangxi Jinhui Renewable Resources Co. Ltd.	Plant in Jiangxi, Yichun	20
Palladium, mine, Pd content	kilograms	Jinchuan Group Co. Ltd.	Gansu, Jinchang	1,170
Do.	do.	Danba County Yangliuping Mining Co. Ltd.	Sichuan, Yangliuping	130
Petroleum:				
Crude	thousand 42-gallon barrels	Bohai Offshore Oil Corp. [China National Offshore Oil Corp. (CNOOC)]	Bohai, offshore	29,300
Do.	do.	Shengli Petroleum Administration Co. Ltd. [China Petroleum & Chemical Corp. (Sinopec Corp.)]	Hebei, Shengli	246,000
Do.	do.	Daqing Petroleum Administration Bureau Co. Ltd. [China National Petroleum Corp. (CNPC)]	Heilongjiang, Daqing	403,000
Do.	do.	Liaohe Petroleum Administration Bureau Co. Ltd. [China National Petroleum Corp. (CNPC)]	Liaoning, Liaohe	110,000
Do.	do.	Nanhai East Corp. [China National Offshore Oil Corp. (CNOOC)]	South China Sea, offshore	36,700
Refinery	million 42-gallon barrels	Hengli Petrochemical Co. Ltd.	Liaoning, Dalian	155
Do.	do.	China National Offshore Oil Corp. (CNOOC)	Plants in multiple Provinces	400
Do.	do.	China National Petroleum Corp. (CNPC)	do.	1,500
Do.	do.	China Petroleum & Chemical Corp. (Sinopec Corp.)	do.	2,200
Do.	do.	Zhejiang Petrochemical Co. Ltd.	Zhejiang, Zhoushan	155
Do.	do.	Other Government-owned refinery facilities	Plants in multiple Provinces	530
Do.	do.	Other non-Government-owned refinery facilities	do.	1,760
Phosphate rock		Guizhou Kailin (Group) Co. Ltd.	Guizhou, Guiyang	10,000
Do.		Guzhou Wengfu (Group) Co. Ltd.	do.	8,500
Do.		Deyang Haohua Qingping Phosphate Co. Ltd.	Sichuan, Deyang	1,000
Do.		Sichuan Jinhe Phosphorus Mining Co. Ltd.	Sichuan, Shifang	1,000
Do.		Yunnan Tianning Mining Co. Ltd.	Yunnan, Anning	12,000
Do.		Yunnan Phosphate Chemical Group Co. Ltd.	Yunnan, Kunming	11,500
Platinum, mine, Pt content	kilograms	Jinchuan Group Co. Ltd.	Gansu, Jinchang	2,700
Do.	do.	Danba County Yangliuping Mining Co. Ltd.	Sichuan, Yangliuping	300
Potash		Qinghai Salt Lake Industry Group Co. Ltd.	Qinghai, Chaerhan	5,000
Do.		Xinjiang Lop Nur Potassic Salt Scientific and Technology Development Co. Ltd.	Xinjiang, Ruoqiang	1,200
Rare earths:				
Mine, rare-earth oxide equivalent	metric tons	Xiamen Tungsten Co. Ltd.	Mines in Fujian	3,500
Do.	do.	China North Rare Earth (Group) High Technology Co. Ltd.	Mines in Gansu and Nei Mongol	100,000
Do.	do.	Guangdong Province Rare Earth Industry Group Co. Ltd.	Mines in Guangdong	3,000
Do.	do.	Aluminum Corporation of China (Chinalco)	Mines in Guangxi, Jiangsu, Shandong, and Sichuan	20,000
Do.	do.	China Minmetals Corp.	Mines in Hunan, Fujian, Guangdong, Jiangxi, and Yunnan	3,500
Do.	do.	China Southern Rare Earth Group Co. Ltd.	Mines in Jiangxi	40,000

See footnotes at end of table.

TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>c</sup>
<b>Rare earths:—Continued</b>				
Smelter, rare-earth oxide equivalent	metric tons	Xiamen Tungsten Co. Ltd.	Plants in Fujian	7,000
Do.	do.	China North Rare Earth (Group) High Technology Co. Ltd.	Plants in Gansu and Nei Mongol	140,000
Do.	do.	Guangdong Province Rare Earth Industry Group Co. Ltd.	Plants in Guangdong	28,000
Do.	do.	Aluminum Corporation of China (Chinalco)	Plants in Guangxi, Jiangsu, Shandong, and Sichuan	45,000
Do.	do.	China Minmetals Corp.	Plants in Hunan, Fujian, Guangdong, Jiangxi, and Yunnan	14,000
Do.	do.	China Southern Rare Earth Group Co. Ltd.	Plants in Jiangxi	42,000
Rhenium, rhenate	kilograms	China Molybdenum Co. Ltd.	Henan, Luanchuan	200
Do.	do.	Guixi smelter (Jiangxi Copper Co. Ltd.)	Jiangxi, Guixi	3,000
Do.	do.	Jinduicheng Molybdenum Industry Group Co. Ltd.	Shaanxi, Huaxian	1,000
Do.	do.	Western Xinxing Metal Materials Co. Ltd.	Shaanxi, Luonan	200
Do.	do.	Ligeance Aerospace Technology Co. Ltd.	Shaanxi, Xianyang	NA
Salt		Zhongyan Dongxing Salt Chemical Co. Ltd.	Anhui, Dingyuan	1,500
Do.		Hubei Changzhou Salt Chemical Co. Ltd.	Hubei, Changzhou	1,400
Do.		Jiangsu Suyan Jingshen Co. Ltd.	Jiangsu, Huai'an	5,000
Do.		Lianyungang City Industrial Investment Group Co. Ltd.,	Jiangsu, Lianyungang	700
Do.		Jiangxi Jinghao Salt Chemical Co. Ltd.	Jiangxi, Zhangshu	1,200
Do.		Laizhou Chengyuan Salt Chemical Co. Ltd.	Shandong, Laizhou	2,000
Do.		Shandong Dadi Salt Chemical Group Co. Ltd.	Shandong, Weifang	800
Do.		Shandong Haihua Group Co. Ltd.	do.	1,400
Do.		Sichuan Jiuda Salt Manufacturing Co. Ltd.	Sichuan, Zigong	4,000
Do.		Sichuan Zigong Chiyu Salt Products Co. Ltd.	do.	300
Do.		Tianjin Changlu Hangu Saltworks Co. Ltd.	Tianjin	3,000
Sand and gravel, machine-made, for construction		China Power Construction Anhui Changjiu New Materials Co. Ltd.	Anhui, Chizhou	70,000
Do.		Anhui Conch Cement Co. Ltd.	Anhui, Wuhu	56,000
Do.		Beijing BBMG Group Co. Ltd.	Beijing	38,000
Do.		China Building Materials Group Co. Ltd.	do.	60,000
Do.		Huaxin Cement Co. Ltd.	Hubei, Huangshi	39,000
Do.		China Resources Cement Holdings Ltd.	Southern China	20,000
Do.		Richangsheng Group Co. Ltd.	Zhejiang, Hangzhou	30,000
Do.		Zhejiang Transportation Investment Group Co. Ltd.	do.	24,000
Do.		Zhoushan Jinxin Mining Investment Co. Ltd.	Zhejiang, Zhoushan	20,000
Do.		Zhoushan Seaport Development Co. Ltd.	do.	22,000
<b>Selenium:</b>				
Primary	metric tons	Jinchuan Group Co. Ltd.	Gansu, Jinchang	50
Do.	do.	Guixi smelter (Jiangxi Copper Co. Ltd.)	Jiangxi, Guixi	300
Secondary	do.	Vital Materials Co. Ltd. (Guangdong Xiandao Co. Ltd.)	Guangdong, Qingyuan	1,000
Silicon, metal		Gansu Lanxing Silicon Materials Co. Ltd.	Gansu, Lanzhou	50
Do.		Sichuan Leshan Xinhe Electric Power Comprehensive Development Co. Ltd.	Sichuan, Leshan	35
Do.		Sichuan Maoxian Pandall Silicon Industry Co. Ltd.	Sichuan, Maoxian	34
Do.		Xinjiang Changji Jisheng New Building Materials Co. Ltd.	Xinjiang, Changji	170
Do.		Xinjiang Jingxin Silicon Industry Co. Ltd.	do.	30
Do.		Xinjiang West Hesheng Silicon Industry Co. Ltd.	Xinjiang, Shihezi	560
Do.		Xinjiang Jiagesen New Energy Materials Co. Ltd.	Xinjiang, Yili	30
Do.		Yunnan Yongchang Silicon Industry Co. Ltd.	Yunnan, Baoshan	76
Do.		Yunnan Lushui County Kangnan Kanghai Silicon Industry Co. Ltd.	Yunnan, Lushui	40
Do.		Yunnan Lushui Jinzhi Jinrui Mining Co. Ltd.	do.	40

See footnotes at end of table.

TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>e</sup>
Silver:				
Mine, Ag content	metric tons	Shengda Metal Resources Co. Ltd.	Beijing	250
Do.	do.	Guocheng Mining Co. Ltd.	Chongqing, Fuling	100
Do.	do.	Zijin Mining Group Co. Ltd.	Fujian, Shanghang	280
Do.	do.	Chenzhou Jingui Silver Industry Co. Ltd.	Hunan, Chenzhou	NA
Do.	do.	Jiangxi Copper Co. Ltd.	Jiangxi, Guixi	700
Do.	do.	Xingye Mining Co. Ltd.	Nei Mongol, Chifeng	437
Do.	do.	Yintai Gold Group Co. Ltd.	Nei Mongol, Xilin Gol	200
Do.	do.	Western Region Gold Co. Ltd.	Xinjiang, Urumqi	150
Metal	do.	Zijin Copper Co. Ltd.	Fujian, Shanghang	125
Do.	do.	Jinchuan Group Co. Ltd.	Gansu, Jinchang	600
Do.	do.	Laibin smelter (Liuzhou Huaxi Group Co.)	Guangxi, Laibin	80
Do.	do.	Jiyuan Wangyang smelter (Jiquan Wangyang Smeltery Group Co. Ltd.)	Henan, Jiaozuo	1,600
Do.	do.	Jinli smelter (Jiyuan Jinli Smelting Co. Ltd.)	Henan, Jiyuan	800
Do.	do.	Jiyuan smelter (Yuguang Gold-Lead Co. Ltd.)	do.	730
Do.	do.	Chenzhou Jingui Silver Industry Co. Ltd.	Hunan, Chenzhou	2,000
Do.	do.	Silvercorp Metals Inc.	Henan, Luoyang	210
Do.	do.	Daye Nonferrous Metals Group Holding Co. Ltd.	Hubei, Daye	300
Do.	do.	Jiangxi Copper Co. Ltd.	Jiangxi, Guixi	430
Do.	do.	Huludao Nonferrous Metals Group Co. Ltd.	Liaoning, Huludao	80
Do.	do.	Yanggu Xiangguang Copper Co. Ltd. (Shandong Fengxiang Group Co. Ltd.)	Shandong, Yanggu	600
Do.	do.	Yantai Penghui Copper Industry Co. Ltd.	Shandong, Yantai	80
Do.	do.	Great Wall Gold Silver Refinery (China Banknote Printing and Minting Corp.)	Sichuan, Chengdu	300
Do.	do.	Yunnan Chengfeng Nonferrous Metals Co. Ltd.	Yunnan, Gejiu	150
Do.	do.	Yunnan Tin Co. Ltd. (Yunnan Tin Corp.)	do.	160
Do.	do.	Chinalco Yunnan Copper Group Co. Ltd.	Yunnan, Kunming	450
Do.	do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	150
Strontium, carbonate		Chongqing Chonglong Strontium Co. Ltd.	Chongqing	20
Do.		Chongqing Tongliang Red Butterfly Strontium Co.	do.	40
Do.		Shijiazhuang Zhengding Xian Jinshi Chemical Co. Ltd.	Hebei, Shijiazhuang	3
Do.		Hebei Xinji Chemical Group	Hebei, Xinji	2
Do.		Nanjing Jinyan Strontium Co. Ltd.	Jiangsu, Lishui	2
Do.		Wutai Yunhai Magnesium Co. Ltd.	Shanxi, Wutai	3
Talc		China National Nonmetallic Industry Corp.	Guangxi, Longshen	130
Do.		do.	Liaoning, Haicheng	50
Do.		do.	Shandong, Qixia	5
Tantalum, products	metric tons	Jiangmen Fuxiang Electro-Materials Co. Ltd. (F&X Electro-Materials Ltd.)	Guangdong, Jiangmen	NA
Do.	do.	Fogang Jiata Metals Co. Ltd.	Guangdong, Qingyuan	NA
Do.	do.	Conghua Tantalum and Niobium Smeltery (CTNS) (Guangdong Rising Nonferrous Metals Group Co. Ltd.)	Guangdong, Shengang	NA
Do.	do.	Guangdong Zhiyuan New Material Co. Ltd. (Jiyuan Cobalt Holdings)	Guangdong, Yingde	NA
Do.	do.	XinXing Haorong Electronic Material Co. Ltd.	Guangdong, Yunfu	NA
Do.	do.	Duo Luo Shan Sapphire Rare Metal Co. Ltd. of Zhaoqing	Guangdong, Zhaoqing	NA
Do.	do.	Hengyang King Xing Lifeng New Materials Co. Ltd.	Hunan, Hengyang	NA
Do.	do.	FIR Metals & Resource Ltd.	Hunan, Zhuzhou	NA
Do.	do.	RFH Tantalum Smeltery Co. Ltd. and Yanling Jincheng Tantalum & Niobium Co. Ltd.	do.	NA

See footnotes at end of table.



TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>c</sup>
Tantalum, products— Continued	metric tons	Metalink International Co. Ltd. (affiliates: Nanjing Metalink International Co. Ltd., and Metalink Special Alloys Corp.)	Jiangsu, Nanjing	NA
Do.	do.	Taike Technology (Suzhou) Co. Ltd.	Jiangsu, Suzhou	NA
Do.	do.	King-Tan Tantalum Industry Co. Ltd.	Jiangxi, Fengcheng	500
Do.	do.	Jiangxi Ding Hai Tantalum & Niobium Co. Ltd.	Jiangxi, Fengxin	NA
Do.	do.	Jiujiang Janny New Material Co. Ltd.	Jiangxi, JiuJiang	NA
Do.	do.	JiuJiang JinXin Nonferrous Metals Co. Ltd.	do.	NA
Do.	do.	Jiujiang Tanbre Co. Ltd. [Jiangxi Tungsten Industry Group Co. Ltd. (China Minmetals Corp.)]	do.	250
Do.	do.	Jiujiang Zhongao Tantalum & Niobium Co. Ltd. (Jiangxi Jiujiang Yizhong Nonferrous Metals Co. Ltd. and others)	do.	NA
Do.	do.	Jiangxi Tuohong New Raw Material Co. Ltd.	Jiangxi, Yichun	NA
Do.	do.	Ningxia Orient Tantalum Industry Co. Ltd. (OTIC)	Ningxia, Shizuishan	NA
Tellurium, refined:				
Primary	do.	Jiangxi Copper Co. Ltd.	Jiangxi, Guixi	70
Secondary	do.	Vital Materials Co. Ltd. (Guangdong Xiandao Co. Ltd.)	Guangdong, Qingyuan	280
Do.	do.	Hunan Jinrun Tellurium Industry Co. Ltd.	Hunan, Chenzhou	200
Tin:				
Mine, Sn content		Guangxi Pinggui PGMA Co. Ltd.	Guangxi, Hezhou	4
Do.		Liuzhou Huaxi Group Co.	Guangxi, Laibin	11
Do.		Southern Mining Co. Ltd.	Hunan, Chenzhou	3
Do.		Xingye Mining Co. Ltd.	Nei Mongol, Chifeng	2
Do.		Yunnan Tin Co. Ltd. (Yunnan Tin Corp.)	Yunnan, Gejiu	33
Smelter		Guanyang Guida Nonferrous Metal Smelting Plant	Guangxi, Guanyang	NA
Do.		Guihuacheng smelter (Guangxi Pinggui PGMA Co. Ltd.)	Guangxi, Hezhou	8
Do.		Laibin smelter (Liuzhou Huaxi Group Co.)	Guangxi, Laibin	25
Do.		Chenzhou smelter (Yunnan Tin Co. Ltd.)	Hunan, Chenzhou	20
Do.		Huichang Hill Tin Industry Co. Ltd.	Jiangxi, Ganzhou	NA
Do.		Nanshan Tin Co. Ltd.	Jiangxi, Nankang	10
Do.		Yunnan Chengfeng Nonferrous Metals Co. Ltd.	Yunnan, Gejiu	20
Do.		Yunnan Tin Co. Ltd. (Yunnan Tin Corp.)	do.	70
Do.		Yunnan Gejiu Zili Metallurgy Co. Ltd.	Yunnan, Huogudu	20
Titanium:				
Mine, concentrate		Chongqing Iron and Steel Xichang Mining Co. Ltd.	Chongqing, Xichang	400
Do.		Lomon Baililian Group Co. Ltd.	Henan, Jiaozuo	600
Do.		Pangang Group Vanadium and Titanium Resources Co. Ltd.	Sichuan, Panzhihua	800
Do.		Sichuan Anning Iron-Titanium Co. Ltd.	do.	530
Sponge		Jinchuan Group Co. Ltd.	Gansu, Jinchuan	15
Do.		Guizhou Southwest Titanium Co. Ltd.	Guizhou, Guiyang	3
Do.		Zunbao Titanium Co. Ltd.	Guizhou, Tongzi	10
Do.		Zunyi Titanium Co. Ltd.	Guizhou, Zunyi	20
Do.		Tangshan Tianhe Titanium Co. Ltd.	Hebei, Tangshan	10
Do.		Luoyang Sun Rui Wanji Titanium Industry Co. Ltd.	Henan, Xin'an	18
Do.		Chaoyang Baisheng Zirconium Co. Ltd.	Liaoning, Chaoyang	12
Do.		Chaoyang Jintai Titanium Co. Ltd.	do.	10
Do.		Fushun Titanium Co. Ltd.	Liaoning, Fushun	5
Do.		Baotai Jinzhou Huashen Titanium Industry Co. Ltd.	Liaoning, Jinzhou	10
Do.		Baotai Titanium Industry Co. Ltd.	Shaanxi, Baoji	10
Do.		Gangqi Xinyu Titanium Co. Ltd.	Sichuan, Panzhihua	5
Do.		Hengwei Titanium Co. Ltd.	do.	5
Do.		Panzhihua Iron and Steel Group Co. Ltd. (Pangang)	do.	20
Do.		Yunnan Metallurgical Group Co. Ltd.	Yunnan, Lufeng	10

See footnotes at end of table.

TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity		Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>c</sup>
<b>Tungsten:</b>				
Mine, WO <sub>3</sub> in concentrate		Ninghua Hangluoken Tungsten Mine (Xiamen Tungsten Co. Ltd.)	Fujian, Ninghua	5
Do.		China Molybdenum Co. Ltd.	Henan, Luanchuan	11
Do.		Shizhuyuan Nonferrous Metals Co. Ltd.	Hunan, Chenzhou	5
Do.		Hunan Yaogangxian Mining Co. Ltd.	Hunan, Yizhang	3
Do.		Jiangxi Tungsten and Rare Earth Co. Ltd.	Jiangxi, Ganzhou	15
Products		Fujian Jinxin Tungsten Co. Ltd.	Fujian, Longyan	2
Do.		GuangDong XiangLu Tungsten Co. Ltd. (Chaozhou Xianglu Tungsten Industry Co. Ltd.)	Guangdong, Chaozhou	4
Do.		Xinhai Rendan Shaoguan Tungsten Co. Ltd.	Guangdong, Shaoguan	2
Do.		Guangxi Guihuacheng Co. Ltd. (Guangxi Pinggui PGMA Co. Ltd.)	Guangxi, Hezhou	2
Do.		Zhongxiang Tungsten Co. Ltd.	Hunan, Chenzhou	NA
Do.		Hunan Chuangda Vanadium Tungsten Co. Ltd. (HCVT)	Hunan, Hengdong	11
Do.		Hunan Chunchang Nonferrous Metals Corp.	Hunan, Hengyang	8
Do.		Hunan Chenzhou Mining Group Co. Ltd.	Hunan, Huaihua	3
Do.		Anhua Tiangong Jinyuan Alloy Materials Co. Ltd.	Hunan, Yiyang	NA
Do.		Hunan Litian High-tech Materials Co. Ltd.	do.	2
Do.		Chaling Dadi Tungsten Co. Ltd.	Hunan, Zhuzhou	NA
Do.		Jiangsu Dongtai Fengfeng Tungsten & Molybdenum Products Co. Ltd.	Jiangsu, Dongtai	200
Do.		Dayu Jincheng Tungsten Industry Co. Ltd.	Jiangxi, Dayu	NA
Do.		Chongyi Zhangyuan Tungsten Co. Ltd.	Jiangxi, Ganzhou	2
Do.		Dayu smelter (Dayu Weiliang Tungsten Co. Ltd.)	do.	NA
Do.		Ganxian Shirui New Material Co. Ltd.	do.	4
Do.		Ganzhou Seadragon W & Mo Co. Ltd. (Ganzhou Grand Sea W & Mo Group Co. Ltd.)	do.	11
Do.		Ganzhou Yatai Tungsten Co. Ltd.	do.	7
Do.		Xinfeng Huarui Tungsten & Molybdenum New Material Co. Ltd.	do.	3
Do.		Jiangxi Tungsten Industry Group Co. Ltd. (China Minmetals Corp.)	Jiangxi, Xiushui	30
Do.		Jiangxi Xiushui Xianggan Nonferrous Metals Co. Ltd.	do.	6
Do.		Sinosteel Jilin Ferroalloy Corporation Ltd. (Sinosteel Corp.)	Jilin, Jilin	NA
Do.		Emei Ferroalloy Co. Ltd.	Sichuan, Emei	NA
Uranium, mine, U content	metric tons	Shaoguan Jinhong Uranium Industry Co. Ltd. [China National Nuclear Corp. (CNNC)]	Guangdong, Shaoguan	300
Do.	do.	Ganzhou Jinrui Uranium Co. Ltd. [China National Nuclear Corp. (CNNC)]	Jiangxi, Chongyi	300
Do.	do.	Fuzhou Jin'an Uranium Co. Ltd. [China National Nuclear Corp. (CNNC)]	Jiangxi, Fuzhou	500
Do.	do.	North Uranium Co. Ltd. [China National Nuclear Corp. (CNNC)]	Liaoning, Benxi	120
Do.	do.	do.	Liaoning, Qinglong	200
Do.	do.	Xi'an CNNC Lantian Uranium Co. Ltd. [China National Nuclear Corp. (CNNC)]	Shaanxi, Lantian	100
Do.	do.	Tianshan Uranium Co. Ltd. [China National Nuclear Corp. (CNNC)]	Xinjiang, Yining	800
Vanadium, V <sub>2</sub> O <sub>5</sub> equivalent		HBIS Chengsteel Co. Ltd. (HBIS Group Co. Ltd.)	Hebei, Chengde	36
Do.		Chengde Jianlong Special Steel Co. Ltd.	do.	19
Do.		CITIC Jinzhou Metal Co. Ltd.	Liaoning, Jinzhou	12
Do.		Sichuan Chuanwei Group Co. Ltd.	Sichuan, Chengdu	15
Do.		Sichuan Desheng Group Vanadium and Titanium Co. Ltd.	Sichuan, Leshan	12

See footnotes at end of table.

TABLE 2—Continued  
CHINA: STRUCTURE OF THE MINERAL INDUSTRY IN 2019

(Thousand metric tons unless otherwise specified)

Commodity	Facilities, major operating companies, and major equity owners <sup>1</sup>	Location of main facilities <sup>2,3</sup>	Annual capacity <sup>c</sup>
Vanadium, V <sub>2</sub> O <sub>5</sub> equivalent— Continued	Sichuan Neijiang Tranvic Special Steel Co. Ltd	Sichuan, Neijiang	24
Do.	Pangang Group Vanadium Titanium Resources Co. Ltd.	Sichuan, Panzhihua	44
Do.	Pangang Group Xichang Steel&Vanadium Co. Ltd	Sichuan, Xichang	36
Zinc:			
Mine output, Zn content	Shuikoushan Nonferrous Metals Co. Ltd.	Hunan, Hengyang	NA
Do.	Guangdong Dabaoshan Mining Co. Ltd.	Guangdong, Shaoguan	NA
Do.	Zhongjin Lingnan Nonferrous Metals Co. Ltd.	Guangdong, Shengzhen	190
Do.	Guangxi Nonferrous Metal Group Co. Ltd.	Guangxi, Nanning	NA
Do.	Jiangxi Tianyi Mining Co. Ltd.	Jiangxi, Guixi	NA
Do.	Inner Mongolia Yulong Mining Co. Ltd.	Nei Mongol, Bayanhubogacha	NA
Do.	Western Mining Co. Ltd.	Qinghai, Xining	NA
Do.	Xinjiang Qianxin Mining Co. Ltd.	Xinjiang, Fuyun	NA
Do.	Yunnan Hualian Zinc Indium Co. Ltd.	Yunnan, Maguan	NA
Do.	Yunnan Jinding Zinc Industry Co. Ltd. (Sichuan Hongda Group Co. Ltd.)	Yunnan, Lanping	NA
Do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	245
Metal	Northwest China Lead-Zinc smelter (Baiyin Nonferrous Metals Co. Ltd.)	Gansu, Baiyin	150
Do.	Zhongjin Lingnan Nonferrous Metals Co. Ltd.	Guangdong, Shaoguan	247
Do.	Hechi Nanfang Nonferrous Metal Smelting Co. Ltd.	Guangxi, Hechi	200
Do.	Guangxi China Tin Group Co. Ltd.	Guangxi, Laibin	60
Do.	Liuzhou Nonferrous Metal Smelting Co. Ltd. (formerly Liuzhou Zinc Products Factory)	Guangxi, Liuzhou	100
Do.	Yuguang Gold-Lead Co. Ltd.	Henan, Jiyuan	300
Do.	Shuikoushan Nonferrous Metals Co. Ltd.	Hunan, Hengyang	60
Do.	Hsikuangshan Twinkling Star Antimony Co. Ltd. (China Minmetals Corp.)	Hunan, Lengshuijiang	40
Do.	Zhuzhou smelter (Zhuye Torch Metals Co. Ltd.)	Hunan, Zhuzhou	500
Do.	Huludao Zinc Smelting Co. (Huludao Nonferrous Metals Group. Co. Ltd.)	Liaoning, Huludao	390
Do.	Zijin Bayannur Co. Ltd. (Zijin Mining Group Co. Ltd.)	Nei Mongol, Bayannur	220
Do.	Chifeng NFC Kumba Hongye Zinc Co. Ltd. (China Nonferrous Metals Mining Group Co. Ltd.)	Nei Mongol, Chifeng	230
Do.	Xing'an Copper & Zinc Smelting Co. Ltd.	Nei Mongol, Xilinuole	100
Do.	Dongling Zinc Industry Co. Ltd. (Dongling Group)	Shaanxi, Baoji	250
Do.	Laibin smelter (Liuzhou Huaxi Group Co.)	Yunnan, Laibin	60
Do.	Yunnan Jinding Zinc Industry Co. Ltd. (Sichuan Hongda Group)	Yunnan, Lanping	120
Do.	Yunnan Chihong Zinc and Germanium Co. Ltd.	Yunnan, Qujing	309
Zirconium, zircon	Various private producers	Hainan, Wenchang and Wanning	120

<sup>c</sup>Estimated; estimated data are rounded to no more than three significant digits. Do., do. Ditto. NA Not available.

<sup>1</sup>Most companies are owned by the central Government or a provincial government. Not all facilities are listed because the available information was inadequate to provide a complete list for the mineral commodity or because there were too many facilities to list.

<sup>2</sup>Listed by Province or autonomous region, followed by locality. Only headquarter locations are provided for some companies that have numerous facilities throughout the country.

<sup>3</sup>Some locations have different official translations; for example, Nei Mongol is also known as "Inner Mongolia" and Xizang is also known as "Tibet."

TABLE 3  
CHINA: EXPORTS OF SELECTED MINERAL COMMODITIES IN 2018 AND 2019

Commodity	2018		2019	
	Quantity (metric tons)	Value (thousand dollars)	Quantity (metric tons)	Value (thousand dollars)
<b>METALS</b>				
<b>Aluminum:</b>				
Alumina	1,461,500	783,695	274,862	167,816
<b>Metal and alloys:</b>				
Unwrought	562,500	1,216,041	577,708	1,100,480
Semimanufactures	5,230,000	15,251,289	5,150,000	14,147,588
Antimony, unwrought	5,326	43,614	12,952	83,998
Cobalt, matte, unwrought, and powder	4,948	364,445	3,237	117,758
<b>Copper, metal and alloys:</b>				
Unwrought	281,849	1,884,505	316,743	1,938,146
Semimanufactures	509,885	4,266,088	524,239	4,114,959
Ferroalloys	860,000	1,839,488	550,000	1,149,203
<b>Iron and steel:</b>				
Pig iron and cast iron <sup>1</sup>	--	775	--	254
<b>Steel:</b>				
Bars and rods	12,750,000	8,567,444	9,590,000	6,118,928
Shapes and sections	3,520,000	2,430,216	3,250,000	2,187,485
Sheets and plates	40,230,000	31,936,726	38,480,000	27,624,671
Tube and pipe	1,740,000	4,906,766	1,680,000	4,757,162
Wire of steel or iron	2,070,000	2,391,427	2,060,000	2,514,580
Scrap	332,343	48,231	2,728	1,030
Manganese, unwrought	424,387	858,302	393,969	714,321
Molybdenum, ore and concentrate	9,829	115,135	5,865	72,418
Nickel, ore and concentrate	71	22	2	3
Rare-earth products	53,031	514,520	46,330	440,232
Tin, metal and alloys, unwrought	6,105	46,060	6,132	73,274
Tungsten, tungstates	5,641	156,070	22,951	704,799
<b>Zinc:</b>				
Metal and alloys, unwrought	24,283	75,182	64,040	161,263
Oxide and peroxide	11,758	33,480	19,218	42,914
<b>INDUSTRIAL MINERALS</b>				
Barite	1,210,000	158,668	1,130,000	141,573
Cement and clinker	9,040,000	490,364	5,530,000	346,607
Fluorspar	400,000	138,471	370,000	134,611
Granite	6,670,000	3,234,537	5,820,000	2,878,669
Graphite, natural	340,000	348,169	290,000	326,101
<b>Lithium:</b>				
Carbonates	11,132	164,948	12,933	159,491
Oxide and hydroxide	27,877	398,038	49,283	623,392
Magnesia, fused	3,150,000	1,047,666	3,090,000	777,534
Talc	700,000	171,100	690,000	163,513
<b>MINERAL FUELS AND RELATED MATERIALS</b>				
Coal	4,930,000	787,301	6,030,000	933,835
Coke, semicoke	9,750,000	2,973,995	6,520,000	1,798,457
<b>Petroleum:</b>				
Crude	2,630,000	1,270,422	810,000	361,760
Refinery products	58,640,000	35,976,362	66,850,000	38,402,047

-- Zero.

<sup>1</sup>The value and volume for exports were reported by the source; the reason for the mismatch was not specified.

Sources: General Administration of Customs of the People's Republic of China, China Monthly Exports and Imports, 2018, no. 12.; Hong Kong Trade Development Council, China Customs Statistics, Import of Chemical, Energy, Medical and Raw Materials in Quantity and Value, Dec 2019; General Administration of Customs of the People's Republic of China, Major Import Commodities in Quantity and Value, Dec 2019; United Nations Comtrade Database.



TABLE 4  
CHINA: IMPORTS OF SELECTED MINERAL COMMODITIES IN 2018 AND 2019

Commodity	2018		2019		
	Quantity (metric tons)	Value (thousand dollars)	Quantity (metric tons)	Value (thousand dollars)	
<b>METALS</b>					
<b>Aluminum:</b>					
Alumina	510,000	321,850	1,650,000	672,956	
Metal and alloys, unwrought	199,320	449,530	291,224	519,947	
Semimanufactures	397,117	2,701,470	354,572	2,390,412	
Scrap	1,570,000	2,510,855	1,390,000	1,925,776	
Chromium, chromite	14,290,000	2,864,750	15,900,000	2,628,980	
Cobalt, matte, unwrought, and powder	229,613	3,695,586	302,433	1,992,464	
<b>Copper:</b>					
Ore and concentrates	19,720,000	32,313,942	21,990,000	33,907,688	
Metal and alloys, unwrought	4,750,000	31,487,018	4,480,000	26,989,234	
Semimanufactures	550,978	5,997,531	503,277	5,481,849	
Scrap	2,410,000	9,353,289	1,490,000	7,374,672	
Iron ore	1,064,470,000	75,539,600	1,068,950,000	101,461,703	
<b>Iron and steel, steel:</b>					
Bars and rods	1,090,000	1,887,176	1,180,000	1,738,595	
Seamless pipe	410,000	1,539,234	330,000	1,176,919	
Shapes and sections	350,000	332,632	280,000	273,525	
Sheets and plates	11,110,000	11,264,224	10,320,000	9,611,052	
Scrap	1,340,000	780,332	180,000	110,971	
Lead, ore and concentrate	1,230,000	1,676,851	1,610,000	2,071,188	
Manganese, ore and concentrate	27,630,000	5,819,937	34,190,000	6,372,171	
Nickel, ore and concentrate	46,958,121	2,974,961	56,116,179	3,933,177	
Titanium dioxide	197,502	601,063	167,108	499,048	
<b>INDUSTRIAL MINERALS</b>					
Diamond	kilograms	2,257	8,835,939	1,882	7,790,998
<b>Lithium:</b>					
Carbonates		24,494	361,548	29,316	240,461
Oxide and hydroxide		1,354	20,499	545	6,330
<b>Nitrogen, phosphorus, and potassium fertilizers:</b>					
Compound fertilizers		1,460,000	669,008	1,390,000	662,212
Potassium chloride		7,460,000	1,847,918	9,080,000	2,653,409
Potassium sulfate		70,000	24,993	70,000	24,944
Urea		163,913	45,433	181,507	46,544
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Coal		281,230,000	24,606,150	299,670,000	23,394,726
Liquefied natural gas		53,780,000	26,837,374	60,250,000	28,662,986
<b>Petroleum:</b>					
Crude		461,900,000	240,261,686	505,720,000	241,318,592
Refinery products		33,480,000	20,179,752	30,560,000	17,076,408

Sources: General Administration of Customs of the People's Republic of China, China monthly exports and imports, 2018, no. 12.; Hong Kong Trade Development Council, China Customs Statistics, Import of Chemical, Energy, Medical and Raw Materials in Quantity and Value, Dec 2019; General Administration of Customs of the People's Republic of China, Major Import Commodities in Quantity and Value, Dec 2019; United Nations Comtrade Database.

TABLE 5  
CHINA: RESERVES OF MAJOR MINERAL COMMODITIES IN 2017<sup>1</sup>

(Thousand metric tons unless otherwise specified)

Commodities	Reserves <sup>2, 3</sup>
Antimony, Sb content	520
Barite	million metric tons 36
Bauxite	do. 1,000
Chromite	4,100
Clay, kaolin	million metric tons 690
Coal	billion metric tons 250
Copper, Cu content	26,000
Fluorspar	42,000
Gas, natural	billion cubic meters 5,400
Gold, Au content	metric tons 2,000
Graphite, mineral	73,000
Iron ore	million metric tons 20,000
Lead, Pb content	18,000
Magnesite	million metric tons 1,000
Manganese, ore	do. 310
Mirabilite, Na <sub>2</sub> SO <sub>4</sub> content	do. 5,500
Molybdenum, Mo content	8,300
Nickel, Ni content	2,800
Petroleum	million 42-gallon barrels 26,000
Phosphate rock	million metric tons 3,200
Potash, KCl content	do. 560
Pyrites	do. 1,300
Salt, NaCl content	billion metric tons 84
Silver, Ag content	41
Talc	million metric tons 82
Tin, Sn content	1,200
Titanium, ilmenite and leucoxene	million metric tons 230
Tungsten, WO <sub>3</sub> content	2,400
Vanadium, V <sub>2</sub> O <sub>5</sub> content	9,500
Zinc, Zn content	44,000

do., Ditto.

<sup>1</sup>No data were available for 2018 and 2019 owing to lack of reserve data in the China Statistical Yearbook 2018 and 2019.

<sup>2</sup>Data have been rounded to no more than two significant digits.

<sup>3</sup>The National Bureau of Statistics of China categorizes these as "basic reserves."